

# **EXHIBIT 29**

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY**

**ADRIANA M. CASTRO, et al.,**

**Plaintiffs,**

**v.**

**SANOFI PASTEUR INC.,**

**Defendant.**

**Civil Action**

**No. 11-CV-07178**

**Hon. John M. Vasquez**

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**REBUTTAL MERITS EXPERT REPORT OF  
PROFESSOR EINER ELHAUGE**

*Einer Elhaug*

April 25, 2016

**HIGHLY CONFIDENTIAL: SUBJECT TO PROTECTIVE ORDER**

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## EXECUTIVE SUMMARY

1. In my opening merits report, I showed that: (I) Sanofi has monopoly power in the MCV4 market (in which Menveo and Menactra compete); (II) Sanofi has monopoly power in the Pediatric vaccine markets (DTaP, Hib, and Polio) that it bundled with Menactra; (III) Sanofi's contracts and conduct imposed the "Bundle" on private customers by requiring them to pay higher prices for Sanofi Pediatric vaccines if they did not commit to Menactra loyalty or had their contracts terminated for violating their Menactra loyalty commitment; (IV) Sanofi did not lower prices at all when it added the Bundle, which directly proves that the Bundle has no procompetitive benefits to customers, as is also confirmed by other evidence; (V) the Bundle anticompetitively divided the MCV4 market by imposing a loyalty condition that elevated Menactra prices to restrained customers (by restraining them from switching to Menveo) and to unrestrained customers (by setting their Menactra price at a penalty above the inflated price to restrained customers), which in turn elevated Menveo prices to both restrained and unrestrained customers (by gutting Novartis' incentives to cut prices); (VI) Menactra's price did not decrease following Menveo entry even though characteristics of the MCV4 market meant that it would have in a but-for world without any anticompetitive restraint, which shows that Menactra's actual post-entry prices were anticompetitively inflated above but-for levels; (VII) a differentiated Bertrand model that is calibrated to the specific facts and data of this case shows that Menactra and Menveo's prices would have been significantly lower in the absence of the Bundle; (VIII) the Bundle caused all Class members to pay some overcharges, and all of this analysis was common to the Class; and (IX) the Bundle caused the Class in aggregate to suffer over \$500 million in overcharges on Menactra and over \$100 million in overcharges on Menveo.<sup>1</sup>

2. Nothing in Professor Rubinfeld's report refutes any of this analysis. Professor Rubinfeld's report repeatedly makes theoretical claims that contradict the economic literature and, at times, his *own* prior academic writings. For example, in his academic writing he states that "yardstick" damages models are not reliable if they are not comparable to the market at issue and one does not control for the differences between the yardstick market and the market at issue, but in this case

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<sup>1</sup> These roman numerals match the numbering of the Parts in my opening merits report.

he does not even *investigate* whether his yardstick markets are comparable to the MCV4 market, let alone attempt to control for the differences between them and the MCV4 market. Professor Rubinfeld also repeatedly contradicts himself within his own report. For example, he claims that vaccine suppliers do *not* face barriers to expansion in his section on market power (because that would support his claim that Sanofi lacks market power), but instead argues that they *do* face barriers to expansion when criticizing my differentiated Bertrand model (because he believes that would impugn my analysis). He also repeatedly makes unsupported factual claims that are contradicted by mountains of evidence. For example, his assertion that Sanofi's 4-Product system agreements were not bundled ignores the evidence that: (a) Sanofi purposefully designed its 4P systems to be bundled in order to protect Menactra's share from Menveo competition; (b) the explicit contract language makes the 4P system agreements bundled; (c) Sanofi employees, including the highest ranking employee in its "Contract Administration" department, repeatedly acknowledged internally that Sanofi's 4P system agreements were Bundled; (d) Sanofi repeatedly reminded customers on 4P system contract that their contracts were bundled; and (e) Novartis acknowledged that Sanofi's 4P system agreements were Bundled. These are only three examples, but they are representative of the nature of Professor Rubinfeld's entire report.

3. In Parts I-XI of this report, I refute every one of Professor Rubinfeld's incorrect claims. Below, I provide a summary of the key points from each Part. For ease of reference, the roman numerals and letter headings in this executive summary match the Parts of my report that discuss the same topic.<sup>2</sup>

4. **I. Market Definition and Monopoly Power.** Professor Rubinfeld incorrectly argues that: (A) I should have used a different market definition; and (b) Sanofi lacks market power.

5. *A. Market Definition.* Menveo is the only vaccine in the same relevant market as Menactra for the simple reason no other vaccine is a demand substitute for Menactra. If Sanofi raises Menactra's price, a medical provider cannot, for example, substitute to a Polio vaccine because a Polio vaccine does not immunize against meningococcal disease. Professor Rubinfeld does not dispute this basic point that Menveo is the only ACIP-recommended vaccine that is reasonably interchangeable with Menactra.

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<sup>2</sup> For example, subsection I.A of this report discusses market definition.



6. Professor Rubinfeld nonetheless argues incorrectly that Menactra is instead part of a broader “All ACIP-Recommended Vaccine” market that includes dozens of vaccines that doctors cannot use as a substitute for Menactra, such as Polio, Diphtheria, Hib, and Rotavirus vaccines. Although economists do occasionally define products that are not demand substitutes into a single “cluster market,” the conditions where a cluster market is appropriate indisputably do not apply here. The academic literature states cluster markets should only be used when buying the components of the cluster from multiple different sellers (instead of from a single seller) increases customers’ transaction costs so much that they would prefer to pay monopoly prices for the cluster from a single seller, rather than accept separate provision at competitive prices. That means it is appropriate to include, for example, Polio vaccines and MCV4 vaccines in the same “cluster” market only if customers’ transaction costs from buying its Polio vaccine from one manufacturer and its MCV4 vaccine from another manufacturer are so high that customers would prefer to pay monopoly prices for Polio and MCV4 vaccines from a single manufacturer, rather than pay competitive prices by buying their Polio and MCV4 vaccines from different manufacturers. There is no evidence indicating that is true; Professor Rubinfeld does not even assert that it is true.

7. Instead of using proper market definition methodologies, Professor Rubinfeld uses a fallacious methodology that the economic literature explicitly rejects to claim that the relevant market is “All-ACIP Recommended Vaccines.” Professor Rubinfeld argues that “All ACIP-Recommended vaccines” are in the same markets because *the manufacturer’s bundled contracts* induce customers to purchase vaccines from a smaller number of vaccines to minimize the artificial bundled penalties. For example, here Sanofi’s Bundle requires customers to pay significantly higher prices on their Sanofi Polio vaccines if they do not use Sanofi’s MCV4 vaccine (Menactra). Consequently, when customers are deciding which MCV4 vaccine to use, they must consider not only the relative prices of the MCV4 vaccines, but also the fact that the prices of their Polio vaccines will change depending on which MCV4 vaccine they use. Many customers therefore choose to buy both their Polio vaccines and their MCV4 vaccine from Sanofi, *not because it reduces transaction costs*, but instead because *Sanofi’s Bundled contracts* would make them pay higher prices on their Polio vaccines if they used a non-Sanofi MCV4 vaccine. Professor Rubinfeld cites the fact that the bundled contracts distort customer’s decisions in this way as evidence in favor of his “All ACIP-Recommended Vaccine market,” but the economic literature explicitly rejects defining a cluster market on the basis that *bundled contracts* cause customers to artificially restrict their purchases to a few sellers in order to avoid bundled



penalties. Indeed, Professor Rubinfeld does not cite a single piece of academic literature that would support his fallacious market definition methodology.

8. *B. Monopoly Power.* Within properly defined markets, Sanofi has monopoly power (and, *a fortiori*, market power) in both the MCV4 market (in which Menveo and Menactra compete) and the three Pediatric vaccine markets that it bundles with Menactra (DTaP, Hib, and Polio). Sanofi's monopoly power is evinced by: (1) high shares of these markets, all of which have high barriers to entry and expansion; (2) direct evidence that Sanofi was able to use its monopoly power to anticompetitively restrain customer decisions in the MCV4 market; and (3) direct evidence that Sanofi was able to use its monopoly power to anticompetitively inflate prices in the MCV4 market. Professor Rubinfeld claims incorrectly that I should have calculated market shares differently, but even his own erroneous market share calculations indicate that Sanofi has monopoly power. When attempting to argue that Sanofi lacks monopoly power, Professor Rubinfeld also argues incorrectly that there are not significant barriers to expansion in these vaccine markets, even though he instead argues elsewhere in his report that there *are* significant barriers to expansion. Professor Rubinfeld also argues implausibly that Sanofi does not have market power over class members because some are purportedly "large," even though the largest customer on Sanofi's standard private contracts constitutes only 1% of the private segment of the market. Professor Rubinfeld does not dispute that direct evidence of monopoly power is itself sufficient to establish monopoly power, but he incorrectly disagrees with my findings that Sanofi was able to restrain customer decisions and inflate prices above competitive levels.

9. In sum, Professor Rubinfeld has no valid critiques of my market definition or my analysis showing, in multiple independently sufficient ways, that Sanofi has monopoly power.

10. **II. Sanofi Did Bundle Menactra with Sanofi's Pediatric Vaccines.** In my opening merits report, I showed (using Sanofi's contracts, contemporaneous documents, data, and deposition testimony) that Sanofi imposed the Bundle on private customers. This evidence showed that, to avoid paying higher penalty prices on Sanofi's Pediatric vaccines, customers had to commit to maintaining loyalty to Menactra under either Sanofi's PBG contract program or its 4-Product Health System contract program. This evidence also showed that if customers broke these Menactra loyalty commitments, they could be terminated from their Sanofi PBG or 4-Product health system agreements, which would require them to pay the significantly higher penalty prices on Sanofi's Pediatric vaccines (under

the contract programs that did not require Menactra loyalty). Professor Rubinfeld nonetheless argues dubiously that Sanofi did *not* actually cause customers to face bundled penalties. To make this dubious claim, he has to overlook mountains of evidence showing over and over that Sanofi did in fact impose the Bundle on private customers.

11. *A. Sanofi Imposed the Bundle on PBG Members.* The evidence overwhelmingly shows that Sanofi imposed the Bundle on PBG members:

- (a) Sanofi documents show that it purposefully designed its PBG agreements to make PBG members' Sanofi Pediatric prices contingent on maintaining a commitment to Menactra loyalty.
- (b) Sanofi's PBG contracts incentivize the PBGs to keep their members loyal to Menactra. Thus, Sanofi is functionally paying PBGs to help impose bundling conditions on the PBG members.
- (c) Sanofi documents and data show that, because Sanofi paid the PBGs to enforce compliance with the Menactra loyalty conditions, PBGs required their members to commit to Menactra loyalty to avoid penalty prices on Sanofi Pediatric vaccines.
- (d) Sanofi documents and data show that, because Sanofi paid the PBGs to enforce compliance with the Menactra loyalty conditions, PBGs monitored customers' compliance with their Menactra commitments, warned noncompliant customers that they would be kicked off the PBG contract if they remained noncompliant, and did in fact terminate members who refused to become compliant again.
- (e) Sanofi documents show that Sanofi employees expended significant efforts monitoring individual PBG members' Menactra loyalty commitments, worked with PBGs on PBGs' messaging to members regarding Menactra loyalty commitments and the implications of failing to satisfy them (i.e., that members would lose access to favorable prices), and told PBGs when particular members were not complying.
- (f) Novartis documents show that Novartis acknowledged that Sanofi PBG members faced bundled penalties for buying Menveo

12. Professor Rubinfeld's argument that Sanofi did *not* impose the Bundle on PBG members rests entirely on the fact that Sanofi does not enter directly into bundled contracts with PBG members. But whether Sanofi has a contract directly with PBG members is not economically relevant to whether Sanofi caused PBG members to face bundled penalties on their Sanofi Pediatric vaccine purchases if they switched from Menactra to Menveo. Professor Rubinfeld's claim that Sanofi did not impose the Bundle on PBG members is analogous to claiming that a mob

boss who hires a hitman to kill someone, and then personally helps the hitman track down the victim, played no substantial role in causing the victim to die.

13. Professor Rubinfeld also repeatedly claims that PBG members face no consequences for buying Menveo based on the premise that PBGs have no incentives to terminate noncompliant members. But quite to the contrary, the record is replete with numerous examples of PBGs terminating members. I provided an example of a Sanofi PBG terminating a member for buying Menveo in my prior reports, and Sanofi's contemporaneous documents reveals example after example of PBGs threatening to terminate noncompliant members in order to make the members switch back to Menactra and actually terminating members who refused to switch back to Menactra.

14. Professor Rubinfeld also makes various other false claims about the PBG bundle, such as that: (1) Sanofi's PBG agreements were not designed to functionally require a high MCV4 market share (internal Sanofi documents repeatedly state they were); (2) the PBG bundled penalties are small (disloyal Sanofi Pediatric vaccine prices were on average 22-36% higher than PBG Pediatric vaccine prices, even after accounting for all discounts like VaxMax); (3) PBGs were often noncompliant with Bundle (they actually were so compliant that the Bundle is economically equivalent to tying).

15. *B. Sanofi Imposed the Bundle on Health Systems.* The evidence also overwhelmingly shows that Sanofi imposed the Bundle on health systems:

- (a) contemporaneous Sanofi business documents show that Sanofi purposefully designed its 4P system agreements to be bundled in order to protect Menactra's share from Menveo competition;
- (b) the explicit language of Sanofi's 4P system agreements makes a loyalty commitment to Menactra a condition of the agreement (and thus also a condition for access the 4P system contract prices and rebates);
- (c) customers could not enter into a health system agreement that would provide loyal prices on Sanofi pediatric vaccines without committing to Menactra loyalty;
- (d) Sanofi repeatedly acknowledged internally that its 4P system agreements were bundled;
- (e) Sanofi repeatedly reminded 4P system customers that their contracts were bundled;
- (f) Novartis acknowledged that Sanofi's 4P system agreements were bundled;

- (g) Sanofi's 4P system agreements did in fact significantly restrain Menveo sales, as both the firms' contemporaneous business records and rigorous statistical analysis show, which would be impossible if they imposed only single-product disloyalty penalties on Menactra.

16. Professor Rubinfeld overlooks all of this evidence and claims instead that Sanofi's 4P system agreements are not bundled. Notably, he does not cite a single contemporaneous Sanofi document supporting that claim. His assertion that the 4P system agreements are not bundled appears to be based on a misinterpretation of the 4P system contract language that is refuted by all of the evidence I have just summarized. Sanofi's 4P system agreements specify that systems will receive rebates on their past Sanofi Pediatric purchases in the most recent time period if they remained loyal to Sanofi's Pediatric vaccines during that period, even if the customer has not been loyal to Menactra in the most recent period. Professor Rubinfeld cites this as evidence that Sanofi's 4P system contracts are not bundled, but that contract language actually means only that the bundled rebate penalty is (like the bundled price penalty) prospective, rather than retroactive. The bundled rebate penalty is *prospective* because if a system does not commit to Menactra loyalty (a condition of the 4P agreement), or has its 4P agreement terminated for violating the Menactra loyalty commitment, then the system will not be eligible for the higher 4P system rebates on any *future* purchases of Sanofi Pediatric vaccines. However, the bundled rebate penalty is *not retroactive* because if a 4-Product system violates the Menactra loyalty commitment in the most recent period, it will still receive the higher 4-Product system rebates on the 4P system's *past* purchases of Sanofi Pediatric vaccines from the most recent period so long as that 4P system satisfied the Pediatric loyalty condition. This means that refusing to make the Menactra loyalty commitment, or violating the Menactra loyalty commitment, will effectively increase the net prices (after accounting for rebates) of Sanofi's Pediatric vaccines for a system's future purchases, but not for its past purchases. In short, it meant that the bundled rebates operated just like bundled price penalties. That is the meaning of the contract language that Professor Rubinfeld cites, and it does not support his unfounded claim that Sanofi's 4P system agreements are not bundled.

17. Paralleling his discussion of Sanofi's PBG agreements, Professor Rubinfeld also makes various other incorrect claims about Sanofi's 4P system agreements. For example, he argues that the bundled penalties on the 4P system contracts were not large, even though (after accounting for all discounts like VaxMax) health systems would have to pay 31-49% higher prices for Sanofi's Pediatric vaccines if they did not make the Menactra loyalty commitment that was

a condition of the 4P system agreement or had their 4P system agreements terminated for violating the Menactra loyalty commitment. As another example, Professor Rubinfeld argues that customers' compliance with their 4P system agreements was low even though the data shows that these customers purchased Menactra for 98% of their MCV4 demand.

18. In sum, Professor Rubinfeld's claim that Sanofi did not impose the Bundle via its PBG contracts or its 4P system agreements is contradicted by mountains of evidence, and his other claims about these contracts are equally unfounded.

19. **III. The Bundle Had No Procompetitive Benefits.** I showed in my opening merits report that Sanofi's Bundle had no procompetitive effects. Most importantly, I showed that Sanofi did *not* lower its Pediatric (or MCV4) prices to customers when it added the Bundle's Menactra loyalty condition to its contracts. Professor Rubinfeld does not dispute this fundamental fact. This means that the difference in Pediatric vaccine prices paid by those with contracts that required a commitment to Menactra loyalty (PBG, 4P system) and those that did not require a commitment to Menactra loyalty (GPO Access, No-Contract) reflects an artificial, anticompetitive penalty for disloyalty to Menactra, rather than any true discount relative to what prices would have been but for the Bundle.

20. I further showed that Sanofi's contemporaneous business documents did not indicate that Sanofi added the Bundle for any procompetitive reasons (i.e., to increase efficiency, lower costs, or reduce customer prices). Instead, these documents affirmatively indicated that Sanofi added the Bundle in order to anticompetitively restrain competition. Professor Rubinfeld does not cite a single contemporaneous Sanofi document stating that it added the Bundle for procompetitive reasons. So this point is also undisputed.

21. Professor Rubinfeld ultimately fails to provide any evidence that the Bundle achieved any procompetitive efficiencies. Nor did he even attempt to quantify any purported procompetitive efficiencies, let alone show they were sufficiently passed on to customers to offset the enormous anticompetitive effects of the Bundle. The fact that the Bundle only raised prices definitively shows that no such procompetitive pass-on occurred. Further, all of Professor Rubinfeld's unsupported theories about the procompetitive efficiencies that the Bundle could hypothetically achieve would be better achieved by less restrictive alternatives, such as using true discounts that were volume-based.



22. In sum, Professor Rubinfeld fails to refute my analysis showing that the Bundle did not have any procompetitive effects.

23. **IV. My Market Division Theory is Economically Sound.** Professor Rubinfeld argues that the Court was mistaken when it rejected Sanofi's argument that my market division theory has not gained general acceptance in the antitrust literature. However, the Court was correct that the market division theories articulated in my articles "are not mere fringe theories."<sup>3</sup> Academic support for the market division theory includes: (1) Professor Salinger, a former director of the FTC economics department; (2) Professor Farrell, another former director of the FTC economics department; (3) Professor Wickelgren (of the University of Texas), my co-author on the market division theory papers; (4) the peer-reviewed Journal of Competition Law & Economics, which published one of my articles on the market division theory; (5) the peer-reviewed International Journal of Industrial Organization, which published another one of my articles on the market division theory; and (6) the board that concluded one of my articles on the market division theory was worthy of being awarded the "Best Academic Anticompetitive Practice Article" of 2015, a board that included Judge Douglas Ginsburg (former head of the DOJ Antitrust Division), Bill Kovacic (former head of FTC), Joshua Wright (former FTC Commissioner), Howard Shelanski (head of OIRA), Frederic Jenny (competition chairman for the OECD), and Alexander Italianer (head of competition for the European Union).<sup>4</sup> In short, my market division theory has wide approval among many of the best economics professors and current or former heads of the top government agencies in charge of antitrust enforcement and policy.

24. Moreover, the facts of this case directly support the market division theory. Professor Rubinfeld does not dispute that Sanofi and Novartis's deposition testimony and contemporaneous internal documents acknowledged that the Bundled divided the MCV4 market. As this Court has previously explained, "these documents and testimony are not merely tangential; they directly describe the precise conduct which Professor Elhauge theorizes. . . . They show that Sanofi and Novartis believed that the market was divided . . . [and that] Novartis declined

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<sup>3</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*5 (D.N.J. September 30, 2015) (citing DOJ/FTC Conditional Pricing Practices Workshop (June 23, 2014), available at: [https://ftc.gov/system/files/documents/public\\_events/302251/cpp\\_workshop\\_transcript.pdf](https://ftc.gov/system/files/documents/public_events/302251/cpp_workshop_transcript.pdf)).

<sup>4</sup> *Infra* Part IV.A.

to use a lower pricing strategy in part because of the bundle.”<sup>5</sup> Thus, the market division theory has support not only among numerous leading economists, but also the very facts of this case.

25. Professor Rubinfeld also makes a variety of misguided criticisms of the logic behind the market division theory. All of them are erroneous, and I have explicitly refuted many of them before in my prior academic writings, which Professor Rubinfeld just ignores.

26. In sum, Professor Rubinfeld has no valid criticisms of the market division theory.

27. **V. Sanofi’s Bundle Anticompetitively Divided the MCV4 Market.** I showed in my opening merits report that many different types of evidence confirm that the Bundle divided the MCV4 market between restrained and unrestrained customers:

- (a) Contemporaneous Sanofi business documents show that Sanofi designed the Bundle to divide the MCV4 market and raise prices, and they also show that Sanofi recognized that the Bundle successfully accomplished both ends.
- (b) Novartis deposition testimony and contemporaneous business documents show that Novartis recognized that the Bundle divided the MCV4 market and inflated prices.
- (c) The enormous size of the Bundled penalties gutted Novartis’ incentives to cut prices in order to gain restrained customers.
- (d) Novartis’ actual pricing of Menveo reflected this market division.
- (e) Numerous Sanofi and Novartis internal documents confirm that the bundled divided the MCV4 market by restraining customers from buying Menveo.
- (e) Data show that compliance with Sanofi’s Bundle was so high that it was economically equivalent to tying.
- (f) Data show Menveo had a significantly higher share among unrestrained customers (30%) than among restrained customers (9%).
- (g) Regression analysis confirms that the Bundle has a restraining effect.
- (h) data shows the Bundle foreclosed 53-63% of the private segment of the MCV4 market and 40-52% of the entire MCV4 market.

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<sup>5</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*5 (D.N.J. September 30, 2015)

28. This Court agreed that the Bundle divided the MCV4 market, finding that “both Sanofi and Novartis believed that the market was divided by the bundle.”<sup>6</sup> Professor Rubinfeld nonetheless asserts the Court was wrong. He actually does not dispute that Sanofi and Novartis both acknowledged that the Bundle divided the MCV4 market. Instead, he makes various incorrect critiques of the many other different types of evidence that show that the Bundle divided the MCV4 market.

29. *A. The MCV4 Market Was Not Divided Before the Bundle and Would Not Have Been Divided Without the Bundle.* Professor Rubinfeld claims that the MCV4 market was *already* divided before Sanofi added the Bundle, but the evidence he cites for that proposition, an internal Sanofi strategic document from 2009, actually explains that Sanofi had been able to maintain elevated prices in the *Pediatric* vaccine markets by using its Pediatric bundle to divide those markets. This same document goes on to recommend that Sanofi use bundling to divide other markets, which is precisely what it did in the MCV4 market. Professor Rubinfeld relatedly claims that the MCV4 market would still be divided in the but-for world because Sanofi could still use *single-product* loyalty penalties for Menactra (i.e., charge higher prices for Menactra to customers who are not loyal to Menactra). However, such a single-product loyalty penalty could not divide the MCV4 market because: (a) it would not significantly restrain customer decisions given the small size of the disloyalty penalty (\$4.10 per MCV4 dose) and the fact that customers prefer to standardize on a single MCV4 vaccine; and (b) the disloyalty penalty would be so small that Novartis could easily overcome the market division through even the slightest price discrimination.

30. *B. The Bundle Did Cause Novartis to Compete Less Aggressively.* Professor Rubinfeld also argues incorrectly that the Bundle did not cause Novartis to compete less aggressively on price because Menveo had a positive market share (9%) among restrained customers, which just ignores that Menveo’s market share was over 3 times higher (30%) among unrestrained customer. Menveo’s share being significantly lower among restrained customer is precisely what one would predict the Bundle to cause, and that this share difference is consistent with the Bundle significantly reducing the share of restrained customers Novartis could gain by cutting price, which in turn reduces Novartis’s incentive to cut price. Professor Rubinfeld relatedly claims that the market was not divided based on the premise that Menveo’s nominal prices were sometimes remotely similar to

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<sup>6</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*5 (D.N.J. September 30, 2015)



Menactra's nominal prices. But the market division instead depends on the fact that the Bundle deterred Novartis from cutting market prices enough to compete successfully for the lion's share of restrained customers, for whom Novartis would sometimes have to price as low as [REDACTED] (well below marginal cost) in order for those customers to save money by switching to Menveo after accounting for the bundled penalties.

31. *C. The Bundle Is Economically Equivalent to Tying.* Professor Rubinfeld also makes invalid critiques of my analysis showing that Sanofi's Bundle is economically equivalent to tying. According to two tying tests, Sanofi's Bundle is economically equivalent to tying for the simple reason that Sanofi's Bundle creates a "sham" discount: Sanofi did not lower the loyal price at all when it added the Bundle, but rather simply raised the unbundled Pediatric vaccine price above both past and but-for levels. For example, before Sanofi added the Bundle, there were already two distinct contract prices for Sanofi's Pentacel vaccine (a DTaP + Hib + Polio vaccine): (1) \$50.486/dose for customers on Sanofi's PBG contracts, which at the time required only loyalty to Sanofi's Pediatric vaccines; and (2) \$69.160 for customers on Sanofi's "non-contract" program, which did not require loyalty to any Sanofi vaccines. When Sanofi added the Bundle, these contract prices stayed *exactly the same*, but Sanofi added a new condition to get the \$50.486 PBG contract Pentacel price: customers now also had to make a loyalty commitment to Menactra. Consequently, after Sanofi added the Bundle customers who made loyal commitments to Sanofi Pediatric vaccines but not to Menactra would have to pay the \$69.160 non-contract price for Pentacel, whereas they had previously paid the \$50.486 PBG price. The fact that Sanofi did not reduce prices to any customers when it added the Bundle, but instead only started making some customers pay *higher* prices after it added the Bundle, shows that the Bundle is a "sham" discount that is economically equivalent to tying. Professor Rubinfeld asserts that Sanofi's Bundle is not a "sham" based on the premise that Sanofi did not increase the "non-contract" Pentacel price when it added Bundle, but as the explanation above shows, one can create a "sham" discount simply by adding a new loyalty condition to get an old price. Relatedly, Professor Rubinfeld also wrongly asserts that I incorrectly calculated the statistic that indicates whether compliance with the Bundle makes it economically equivalent to tying. His critiques are based on incorrect understandings about: (a) how I calculated the statistic; (b) how the treatise volume written by Professors Areeda, Hovenkamp, and myself stated the statistic should be calculated; and (c) the logic behind this statistic. I calculated the statistic using the correct method in my opening merits report, and it shows that noncompliance with the Bundle was so rare that the Bundle was economically equivalent to tying.

32. *D. Menveo's Higher Share Among Unrestrained Customers Is Consistent with Anticompetitive Market Division.* Professor Rubinfeld does not dispute that Menveo's share among unrestrained private customers (30%) is significantly higher than its share among restrained private customers (9%). He asserts that Menveo's 6.5% share among unrestrained FSS customers is inconsistent with the Bundle restraining Menveo's share based on his premise that the Menactra price premium was not always lower for FSS customers. However, the data shows that his premise is incorrect: the Menactra price premium *was* always lower for FSS customers, which should predictably cause their Menveo shares to be lower despite them being unrestrained.

33. *E. My Menveo Share Regressions are Reliable and Indicate a Substantial Restraining Effect Despite Being Conservative.* My Menveo share regressions provide a conservative underestimate (i.e., a floor) of the effect of Sanofi's bundled penalties on Menveo's share. Even this conservative underestimate indicates that, if one eliminated the bundled penalties but held all other prices equal, Menveo's share would be 1.8 times higher among restrained PBG members and 3.8 times higher among restrained 4P system customers. This finding is consistent with all of the other evidence in this case, including contemporaneous Sanofi and Novartis documents acknowledging that the Bundle significantly restrained Menveo sales.

34. Professor Rubinfeld's criticisms of the Menveo share regression are all invalid. His claim that the Menveo share regression does not control for customer preference hinges on his unsupported assertion that customers who buy Sanofi Pediatric vaccines (which immunize against DTaP, Hib, and Polio) will inherently prefer Sanofi's MCV4 vaccine (Menactra) relative to Menveo. Professor Rubinfeld does not cite a single piece of evidence that actually supports his theory, and the functional factors cut in precisely the opposite direction. Further, my Menveo share regression affirmatively refutes his theory by showing that, among customers who do not face additional bundled penalties for buying Menveo, those who buy Sanofi Pediatric vaccines actually have *higher* Menveo shares, indicating a *weaker* preference for Menactra (the opposite of what Professor Rubinfeld's theory predicts). To support his conclusion that the Menveo share regression does not indicate a substantial restraining effect, Professor Rubinfeld must alter the regression by making two simultaneous errors: (1) including a spurious Buys\_GSK\_Merck variable; and (2) limiting the sample for no theoretically justifiable reason. I show below that Professor Rubinfeld's

purported theoretical justifications for making these two errors crumble under the slightest scrutiny.

35. *F. Professor Rubinfeld's Own Incremental Price Analysis Confirms that the Bundle Divided the MCV4 Market.* Professor Rubinfeld attempts to calculate each customer's incremental Menactra price (which equals the nominal Menactra price minus the bundled penalty) and compare those incremental prices to Sanofi's costs. Even though he makes several errors in this calculation, his incremental price analysis still supports the market division because it indicates that the Bundle reduced Menactra's incremental prices in a way that reduced how many restrained customers Novartis could win by cutting price and therefore reduced Novartis's incentive to cut price. Although bundling need not result in incremental prices below cost to anticompetitively divide the market, even a partially corrected version of Professor Rubinfeld's incremental price analysis shows that Menactra was sold at an incremental price below forward-looking cost (the relevant measure of cost) for 29% of restrained customers.

36. **VI. Sanofi's Bundle Foreclosed a Substantial Share of the MCV4 Market.** I showed in my opening merits report that Sanofi's bundle foreclosed 53-63% of the private segment of the MCV4 market and 40-52% of the MCV4 market. These high foreclosure shares (particularly of the private segment of the MCV4 market) are further evidence confirming that the Bundle restrained a large enough portion of the market to divide the MCV4 market. Professor Rubinfeld has no valid criticisms of this analysis. His claims that I used the wrong methodology conflict with the economic literature showing that I used the standard methodology for calculating foreclosure shares. His claims that I overstated foreclosure shares are based on his incorrect assertions that Sanofi's Bundle did not restrain the decisions of customers like those on 4P system agreements, who as the evidence shows, were clearly restrained by the Bundle.

37. **VII. The Lack of Any Menactra Price Decrease Following Menveo Entry Indicates the Bundle Anticompetitively Inflated Prices.** In my opening merits I explicitly acknowledged that incumbent monopolists do not always reduce their prices when their first competitor enters, but I ruled out all of those rare situations in this case. For example, here there is no evidence that, during Menveo entry, Sanofi's marginal costs were increasing or MCV4 demand was increasing. Nor is there any evidence that Sanofi and Novartis coordinated on class member prices at all, let alone that they *perfectly* coordinated on price in a way that would explain the lack of any price decline after Novartis entry created market competition. Professor Rubinfeld ultimately does not assert that this case involves

any of the rare situations in which the first competitive entry does not reduce incumbent prices. Consequently, there is no dispute that, in the absence of anticompetitive conduct, Menactra's price would have decreased relative to pre-entry levels after Menveo entry (i.e., that Menactra's but-for post-entry price would have been below Menactra's pre-entry price). I showed in my opening merits report that, after Menveo entered, Sanofi did *not* lower its Menactra prices relative to pre-entry levels. Professor Rubinfeld does not dispute this fact either. Consequently, there is no real dispute about the fact that Sanofi's failure to reduce Menactra's price relative to pre-entry levels following Menveo entry shows that Menactra's actual post-entry prices exceeded its but-for post-entry prices (i.e., that Menactra's post-entry price was anticompetitively inflated).

38. All of Professor Rubinfeld's responses to this analysis are misguided. He makes various factual claims that, even if accepted as true, would not refute my analysis. For example, Professor Rubinfeld does not dispute that Menactra's price did not decrease following Menveo entry, but makes the irrelevant claim that Menactra's price would have increased faster over time had Menveo never entered. Whether Sanofi's price would have grown faster without Menveo entry has no relevance to this case because this case is about what would have happened in the absence of Sanofi's Bundle, not what would have happened in the absence of Menveo entry. Given the undisputed economic analysis showing that, without the Bundle, Menactra's but-for post-entry price would have actually *decreased* from pre-entry levels, evidence that Menactra's price merely *stayed the same* or *grew more slowly* following Menveo entry in the actual world still indicates that Menactra's actual post-entry prices were anticompetitively inflated above but-for levels. As another example, Professor Rubinfeld asserts (incorrectly) that MCV4 demand and Sanofi's marginal costs were merely "stable" during Menveo entry, rather than changing in directions that affirmatively should have helped reduce post-entry prices. However, my conclusion follows even if MCV4 demand and Sanofi's marginal costs were stable because stability in market conditions cannot explain why Menactra's price did not decrease after Menveo entry introduced competition into the MCV4 market for the first time.

39. **VIII. My Differentiated Bertrand Competition Model Correctly Indicates That MCV4 Prices Would Have Been Significantly Lower Without the Bundle.** In my opening merits report, I used a differentiated Bertrand model, calibrated specifically to the facts and data of this case, to estimate the Menactra and Menveo prices that would have been profit-maximizing without the Bundle. Unlike the "yardstick" model Professor Rubinfeld proposes, which uses price data from *completely different markets* without controlling for *any* differences between

the yardstick markets and the MCV4 market, every aspect of my differentiated Bertrand model is specifically tailored to the MCV4 market based on actual data. My differentiated Bertrand model is based on all of the following facts and data: (1) that Sanofi and Novartis did not coordinate on class member prices *in the actual MCV4 market*; (2) that Sanofi and Novartis compete on price (rather than quantity) *in the actual MCV4 market*; (3) a quantitative estimate of the MCV4 market demand elasticity (i.e., how much market demand would increase if prices decreased) that was calculated using Sanofi's actual prices and actual costs *in the actual MCV4 market*; (4) customer substitution rates that were measured using data on how actual customers whose decisions were not distorted by the Bundle substituted between the products *in the actual MCV4 market*; and (5) Sanofi and Novartis's cost data *in the actual MCV4 market*. My differentiated Bertrand model therefore fits the MCV4 market closer than any other non-MCV4 "yardstick" market ever conceivably could. This differentiated Bertrand model shows that Menactra and Menveo would have been significantly cheaper in the but-for world, and consequently that Menactra overcharges range from 38-43% and Menveo overcharges range from 49-57% (depending on the year). None of Professor Rubinfeld's criticisms of my differentiated Bertrand model are valid.

40. *A. Sanofi and Novartis Did Not Coordinate on Class Member Prices.* Professor Rubinfeld's claims that I am wrong to conclude that the evidence that coordination could not and did not occur supports using a differentiated Bertrand competition model because he claims that Sanofi and Novartis did coordinate on class member prices. His claims that the firms coordinated primarily repeat old arguments that I have already rebutted and that this Court has already rejected.<sup>7</sup> For example, he asserts that Sanofi and Novartis coordinated on *class member* prices based on the fact that their *list* prices were the same, but I have already shown that: (a) it is easier to coordinate on list price than on actual class member prices, so an ability to coordinate on list prices does not show an ability to coordinate on class member prices; and (b) customers hardly ever pay the "list price" for both Menveo and Menactra, meaning that "list price parity" hardly ever results in actual price parity.

41. The only new analysis that Professor Rubinfeld includes in his section on coordination is his claim that an "analysis of pricing structures adopted by

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<sup>7</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*13 (D.N.J. September 30, 2015) ("data analysis by Professor Elhauge shows that the firms virtually never coordinated on actual prices, as opposed to list prices.").



Novartis and Sanofi” shows that “Menactra and Menveo were priced at approximate parity.”<sup>8</sup> But what he claims to be an “analysis of pricing structures” turns out to be merely the assertion that Menactra’s and Menveo’s price ranges *partially* overlap. His claim that a partial overlap in price ranges indicates price coordination is not supported by any economic literature and conflicts with economic analysis of oligopolistic price coordination. To make matters worse, Professor Rubinfeld doesn’t even show much overlap. For example, Rubinfeld Exhibit 39 asserts that, for PBG members, Menveo’s price range in 2010 was [REDACTED], while Menactra’s price range was \$92.75-\$98.55. That means that, according to Professor Rubinfeld’s own Exhibit, for PBG customers about half of Menveo’s price range is completely below the bottom of Menactra’s price range and about a fifth of Menveo’s price range is completely above the top of Menactra’s price range. That, if anything, *refutes* Professor Rubinfeld’s claim that they priced at approximate parity. Even worse, Professor Rubinfeld’s analysis exaggerates what little price range overlap exists by ignoring the situations where Novartis cut prices significantly and Sanofi did not match the price cut (the exact situations which refute his conclusion). For example, Professor Rubinfeld’s Exhibit 39 asserts that Menveo’s price range to PBG members in 2011 was [REDACTED] [REDACTED]/dose only because he ignores Novartis’s temporary price reduction to [REDACTED] in late 2011, under which 16% of Menveo doses were purchased that year. So Professor Rubinfeld’s purported “price structure” analysis is unreliable not only because the logic behind it (that any overlap in price ranges equates to price coordination) is fallacious, but also because it ignores the data that contradicts his conclusion. Moreover, I have previously shown that Sanofi and Novartis’s price structures actually *refute* coordination because Menveo’s price structure is based primarily on the volume of Menveo produced, whereas Menactra’s price structure is based primarily on whether a customer is loyal to Sanofi Pediatric vaccines.

42. Below, I also refute Professor Rubinfeld’s various unfounded criticisms of my data analysis showing directly that Sanofi and Novartis hardly ever charged the same price as each other to a given class member. For example, Professor Rubinfeld asserts that Menactra and Menveo were priced at “approximate parity” for class members who purchased similar volumes of Menactra or Menveo, but Sanofi and Novartis’s data directly refutes that claim, and indeed confirms that Menactra’s price essentially does not depend on volume at all and instead depends almost solely on whether customers are loyal to Sanofi’s Pediatric vaccines. Professor Rubinfeld’s other unsupported claims about price

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<sup>8</sup> Rubinfeld Report Exhibit 39.

coordination likewise fall apart when compared to the actual data on Sanofi and Novartis's prices. Indeed, even Professor Rubinfeld's own price dataset, which he created for his conjectural variation model, contradicts his claim that Sanofi and Novartis priced at "approximate parity" for class members.

43. *B. I Did Not Fail to Account for "Important Industry Characteristics."* Professor Rubinfeld also incorrectly claims that I failed to account for two purported "important industry characteristics." First, he claims that I failed to account for the fact that Sanofi and Novartis anticipated possibly receiving more ACIP recommendations for Menactra and Menveo or possibly introducing new meningococcal vaccines. But Professor Rubinfeld fails to provide any theory as to how that should affect Menactra and Menveo's profit-maximizing prices, and indeed Professor Rubinfeld does not "account" for this purportedly important characteristic in either of his alternative methods for estimating but-for prices (his yardsticks or and his conjectural variation model). Second, Professor Rubinfeld asserts incorrectly that Sanofi and Novartis had capacity constraints on their production of Menactra and Menveo that would have prevented them from producing as much MCV4 as my differentiated Bertrand model predicts they would have sold in the but-for world. The evidence actually shows that both Sanofi and Novartis had enormous amounts of *excess* production capacity. Further, Professor Rubinfeld does not "account" for this purported "important industry characteristic" in any of his but-for price models either.

44. *C. My Differentiated Bertrand Model Is Fully Calibrated.* Professor Rubinfeld claims incorrectly that my differentiated Bertrand model is not "calibrated" to the MCV4 market. To the contrary, it is fully calibrated because it relies on data specifically about the MCV4 market to determine all of its inputs. Indeed, my differentiated Bertrand model "calibrates" for the same values that Professor Rubinfeld calibrates for in his academic papers on merger simulation: (1) the firms' marginal costs, (2) the marketwide demand elasticity, and (3) customer substitution rates between firms in the market. In contrast, Professor Rubinfeld's "yardstick" analysis is an example of an "uncalibrated" model of the MCV4 market in the but-for world because it does not use any data from the MCV4 market (his data is instead about completely different markets) and he does not make any attempt to control for any of the differences between the MCV4 market and these other markets that affect profit-maximizing prices. Professor Rubinfeld criticizes me for not also modeling the actual world, but that is unnecessary given that we can already directly observe actual world prices. But in any event, I also show that Menactra's actual world prices (which remained at 100% monopoly levels after Menveo entry) can be fully explained by differentiated Bertrand

competition if one makes only a *single* correction to Professor Rubinfeld's model of the actual world.

45. *D. My Marginal Cost Analysis Is Reliable.* Professor Rubinfeld makes various invalid criticisms of the way in which I calculated Menactra's and Menveo's marginal costs (which are inputs to the differentiated Bertrand model). For example, he claims that I should not have relied on Sanofi's and Novartis's accounting cost data, but he points to no alternative data one could use, and he ignores that economists regularly use accounting cost data because it is usually the only cost data available. Indeed, Professor Rubinfeld does not propose any alternative methodology for estimating the firms' marginal costs, and he uses my own estimates in all of his analyses that involve marginal cost.

46. *E. My FSS Customer Substitution Regression Reliably Indicates How Customers Substitute Between Menveo and Menactra Without Sanofi's Bundle.* Because the purpose of my differentiated Bertrand model is to estimate the Menactra and Menveo prices that would have been profit-maximizing *without* the Bundle, it relies on a regression measuring how actual customers in the MCV4 market substituted between Menveo and Menactra in a portion of the market that was not subject to the Bundle. Here, FSS customer purchase decisions are the best available indicator of how customers substituted between Menveo and Menactra without the Bundle because there is no dispute that the Bundle does not distort their purchasing decisions. Indeed, Professor Rubinfeld does not propose any alternative methodology for estimating how customers would substitute between Menveo and Menactra without the Bundle. Nor does Professor Rubinfeld dispute that more than half of all practicing physicians in the U.S. acquired at least a portion of their medical training at FSS customers (such as VA hospitals), which directly shows that FSS purchaser decisions should be representative of private purchaser decisions. Professor Rubinfeld claims that FSS customer purchasing decisions are not representative of private customer purchasing decisions based on his claim that there are purportedly important "differences" between FSS customers and private customers. But these purported "differences" are illusory (for example, he claims that only FSS customers have mandatory vaccination requirements, but actually private customers do as well), unsupported (for example, he vaguely claims that FSS customers "may" be serving a "different demographic"), and irrelevant (he does not propose any theory as to how these "differences" are relevant to customer substitution rates).

47. I explained in my opening merits report that customer substitution regression focuses on the time periods immediately before and after each FSS price



change in order to minimize bias due to other factors changing over time, and Professor Rubinfeld does not dispute that this methodology minimizes bias. He nonetheless presents regressions that include data from time periods far from the price changes being analyzed, which will predictably bias the regression results and therefore make them more inaccurate. However, even these more biased regression results still indicate substantial overcharges, which shows that my ultimate conclusions are remarkably robust even to inappropriate modifications that introduce econometric bias. Professor Rubinfeld also makes various other purported “criticisms” of my FSS regression that are not based on any econometric reasoning. For example, he claims that there is “little” variation in FSS prices but never asserts that this supposed “little” variation causes any statistical problems such as econometric bias. He ultimately does not have a single valid criticism of my FSS customer substitution regression.

48. *F. My Differentiated Bertrand Model Predicts Plausible But-for Immunization Rates.* Professor Rubinfeld asserts incorrectly that my differentiated Bertrand model “unrealistically” implies a but-for MCV4 immunization rate of 95%. Professor Rubinfeld made numerous errors when calculating the but-for MCV4 immunization rate implied by my differentiated Bertrand model: the real but-for immunization rate is 78%, which is lower than the actual Tdap immunization rate (81%) and therefore is eminently plausible. Moreover, Professor Rubinfeld’s claim is practically irrelevant because my differentiated Bertrand model indicates substantial overcharges and damages even if one incorrectly assumes that the MCV4 sales would not increase at all if prices decreased in the but-for world. In other words, my model shows substantial overcharges even if one wrongly assumed that the but-for MCV4 immunization rate would be the same as the actual MCV4 immunization rate.

49. *G. Novartis’s But-for Price Exceeds Its Forward-looking Cost.* I showed in my opening merits report that Novartis’s but-for private prices would have exceeded its forward-looking cost per dose. Here I also show that Novartis’s but-for prices would have exceeded its forward-looking cost per dose even after one accounts for the but-for VFC Menveo price being lower than the but-for private Menveo price. Professor Rubinfeld does not even assert the contrary. Instead, he vaguely claims that “it is “quite *possible* that Novartis would not have been able to cover its forward-looking costs for Menveo.”<sup>9</sup> He offers no

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<sup>9</sup> Rubinfeld Report ¶653 (emphasis added).

calculation purporting to show that Novartis's but-for price would have been lower than its forward-looking cost per dose.

50. *H. Kaiser's Prices Do Not Contradict My Analysis.* Professor Rubinfeld also wrongly asserts that my differentiated Bertrand analysis must be wrong because it predicts but-for Menactra prices that are lower than Kaiser's actual Menactra prices. His claim is based entirely on the premise that the Sanofi-Kaiser contract was not bundled, but I have shown that the Sanofi-Kaiser agreement may be bundled, and Professor Rubinfeld has no valid response. Further, Professor Rubinfeld ignores that Kaiser's actual Menactra price likely exceeds its but-for Menactra price. Sanofi's Bundle inflated the firms' VFC prices, which in turn reduced the firms' incentives to cut prices to Kaiser in the actual world because doing so would require them to also lower VFC prices (because the VFC price can be no higher than the lowest private-sector price). In contrast, in the but-for world the VFC price would have been significantly lower than Kaiser's actual price (~\$79), and therefore Sanofi and Novartis would have had much larger incentives to cut price to Kaiser, which would have resulted in lower Kaiser prices.

51. *I. My Predicted But-for Prices and Profit Margins Are Well Within the Normal Range for Vaccines.* In response to Sanofi arguments that my predicted but-for MCV4 prices were absurdly low for the vaccine industry, I showed that Menactra's and Menveo's but-for prices were still higher than many of Sanofi's other vaccine prices and that Menactra and Menveo's but-for profit margins were well within the range of normal vaccine profit margins. Professor Rubinfeld does not assert that my but-for Menactra and Menveo prices and profit margins are outside the norm for the vaccine industry. Instead, he claims that comparing prices and profit margins in the MCV4 market to prices and profit margins in other vaccine markets is "meaningless" because "there is no reason to expect that Menactra should be priced at the same level as . . . different vaccines that inoculate against different diseases, are administered to a different . . . population, have different manufacturing processes, with different costs of production, and face different market conditions."<sup>10</sup> I agree with Professor Rubinfeld that one should *not* expect Menactra's price to be or act the same as vaccines in completely different markets. That in no way refutes my analysis because I did not assert that MCV4 prices should be the same as other vaccine prices, only rebutted Sanofi's claims that my but-for MCV4 prices were absurdly

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<sup>10</sup> Rubinfeld Report ¶661.

low for the vaccine industry. However, Professor Rubinfeld's point here *does* illustrate one of the reasons why his yardstick model of the but-for world is "meaningless": it assumes that MCV4 vaccine prices should respond to the first entry by a competitor in the exact same way that incumbent vaccine prices have responded in markets with "different vaccines that inoculate against different diseases, are administered to a different population, have different manufacturer processes, with different costs of production, and face different market conditions."

52. **IX. Professor Rubinfeld's Conjectural Variation Model Is Fatally Flawed and Supports My Conclusions Even If One Corrects Only One of Its Many Errors.** Professor Rubinfeld purports to calibrate his own "conjectural variation" model of the MCV4 market to actual Menactra and Menveo. He claims that this conjectural variation model indicates that Menactra's and Menveo's actual world prices are explained by price coordination, rather than by anticompetitive market division. However, he hid essentially all of the assumptions of his conjectural variation model in his backup programs, and analyzing his backup shows that he made at least five unjustifiable assumptions that drive his model. For example, although Professor Rubinfeld's conjectural variation model is purportedly attempting to model actual private sector prices, it assumes away the existence of customers on Sanofi's 4-Product system agreements. He did not even mention this assumption in his report, let alone attempt to provide a theoretical justification for it.

53. Professor Rubinfeld's conclusion that his "conjectural variation" model indicates that actual world prices are explained by price coordination hinges entirely upon what I call his "hidden regression." Professor Rubinfeld did not mention this "hidden regression" in his report or produce it in his original backup. This "hidden regression" attempts to measure how private customers actually substituted between Menveo and Menactra in response to price differences. His conjectural variation model will indicate that Menactra and Menveo's actual prices are explained by price coordination only if his hidden regression indicates that private customers were able to freely substitute between Menactra and Menveo despite the Bundle. However, his "hidden regression" contains numerous errors that benefit Sanofi. As one example, Professor Rubinfeld's hidden regression uses a regression sample period that is subject to econometric bias because it includes periods where Novartis provided unusually large Menveo discounts that caused customers who preferred Menveo to "stock up" on Menveo, which would under his method indicate a substitution effect even if price differences never caused customers to switch between Menveo and Menactra.

54. If one uses an alternative regression sample period that is not affected by the “stock-up” bias, but leaves every other part of Professor Rubinfeld’s hidden regression the same, then it indicates the private customers actually do *not* freely switch between Menveo and Menactra in response to price differences—the exact opposite of what Professor Rubinfeld’s original hidden regression found. If one plugs these alternative hidden regression results into Professor Rubinfeld’s model of the actual world, then it indicates that Sanofi’s ability to maintain 100% Menactra prices following Menveo entry can be explained fully by differentiated Bertrand competition (i.e, no coordination) in a market where bundled contracts restrain customers from switching to rivals. This shows that Professor Rubinfeld’s original hidden regression and conjectural variation model are neither accurate nor robust to reasonable alternative specifications. His results are flipped even if one corrects only one of *multiple* errors in his conjectural variation model.

55. **X. Professor Rubinfeld’s Yardstick Analysis Is Unreliable and “Meaningless” According to His Own Logic and Prior Academic Writings.** Professor Rubinfeld claims that his preferred method of calculating damages in this case is his “yardstick” methodology. His “yardstick” approach assumes that, without the Bundle, Menactra’s price would have changed in response to Menveo entry in the same way that the incumbent vaccines’ prices changed in response to first competitive entry in completely different vaccine markets. Although this “yardstick” approach *can* be a reliable methodology if implemented correctly, Professor Rubinfeld’s “yardstick” analysis is unreliable because it has three fatal flaws that each independently make it useless.

56. *First*, Professor Rubinfeld failed to establish that his yardstick markets were free from anticompetitive conduct. Professor Rubinfeld’s own academic writing acknowledges the fundamental point that a market cannot serve as a valid yardstick of what would happen without anticompetitive conduct if that other market was also subject to anticompetitive conduct. That would be like claiming that Alex Rodriguez would have hit just as many home runs had he never taken performance-enhancing drugs based on evidence that Barry Bonds also hit a lot of home runs when he was on performance-enhancing drugs. Professor Rubinfeld does not even investigate whether any of his other proposed “yardsticks” are subject to anticompetitive conduct. This complete failure to establish that any of his yardstick markets are free from anticompetitive conduct renders all of them unreliable.

57. Indeed, far from showing that anticompetitive bundling does not exist in his yardstick markets, Professor Rubinfeld affirmatively acknowledges that

bundling is endemic to the vaccine industry. Further, while there is little-to-no discovery on most of Professor Rubinfeld's yardstick markets, the available discovery affirmatively indicates that his yardsticks are tainted by bundling. For example, Professor Rubinfeld claims that the Rotavirus vaccine market is the best yardstick in this case. He asserts that the Rotavirus market is not subject to anticompetitive conduct based on the premise that a contract between the Rotavirus market incumbent (Merck) and a PBG from over a year before the first competitive entry did not include bundling conditions. But the evidence actually shows that, right before the first rival entered the Rotavirus market, Merck amended its PBG agreements explicitly to impose a large bundled penalty on customers who switched to the rival Rotavirus vaccine.

58. *Second*, Professor Rubinfeld's yardstick analysis is "meaningless" according to his own logic because it does not even *attempt* to control for the differences between the MCV4 market and his proposed yardstick markets. Elsewhere in his report, Professor Rubinfeld explains that is "meaningless" to compare MCV4 prices to the prices of vaccines in other markets because those other vaccine markets have different cost and demand conditions.<sup>11</sup> Likewise, in his academic writing, Professor Rubinfeld states that yardstick markets should "reflect the same degree of competition, the same costs, and the same demand conditions as would have prevailed in the market at issue had there been no wrongful behavior."<sup>12</sup> He further explains in his academic writing that "if an appropriate yardstick is available, it is important to take into account any differences in costs and the extent of competition between the yardstick market and the market at issue."<sup>13</sup> Yet Professor Rubinfeld does not establish that *any* of his proposed yardstick markets are comparable to the MCV4 vaccine market in any relevant ways. Moreover, I show below that the evidence affirmatively indicates that there are significant relevant differences between the MCV4 vaccine market and Professor Rubinfeld's proposed yardstick markets, and Professor Rubinfeld has not even attempted to control for *any* of those differences. Professor Rubinfeld's complete failure to even *investigate* whether his yardsticks were sufficiently comparable to the MCV4 market is second, independently sufficient, reason that they are all unreliable.

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<sup>11</sup> Rubinfeld Report ¶661.

<sup>12</sup> Daniel Rubinfeld, *Antitrust Damages*, in the RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 378, 380 (ed. Elhauge 2013).

<sup>13</sup> *Id.*

59. *Third*, Professor Rubinfeld's yardsticks do not even use reliable data. Professor Rubinfeld relies on IMS NSP data as the basis for the prices in his yardstick markets. But comparing the IMS NSP data to Sanofi's transaction data shows that the IMS NSP data is not even a remotely reliable estimate of actual prices. Worse yet, Professor Rubinfeld inconsistently applied this unreliable IMS NSP data in a way that favored Sanofi. While he used the IMS NSP data to calculate his yardstick prices, he instead used Sanofi transaction data to calculate Menactra's prices. If one instead consistently uses the IMS NSP data to calculate both Menactra's price and the yardstick prices, then Professor Rubinfeld's own yardstick model actually indicates that Menactra's price was substantially inflated.

60. In sum, Professor Rubinfeld's yardstick model flunks all three tests that a yardstick must pass to be reliable: (1) he fails to show that his yardsticks are not tainted by anticompetitive conduct; (2) he fails to investigate, let alone control for, relevant differences between his yardstick markets and the MCV4 market, and (3) he relies on, and inconsistently applies, data that is not even remotely accurate. Further, if one uses a consistent version of his own flawed yardstick model, it still indicates large overcharges.

61. In sum, Professor Rubinfeld neither has any valid critiques of my analysis nor any valid alternative estimates of but-for prices. His report is a haphazard collection of theoretical claims that contradict the economic literature (including his own prior academic writings), factual claims that contradict the evidence in this case, and incorrectly calculated statistics. Nothing in his report changes any of my original conclusions.

## **I. MARKET DEFINITION & POWER**

62. In my opening merits report, I concluded based on the evidence in this case that there are at least four distinct relevant markets, one for each of the following vaccines: MCV4, DTaP, Hib, and Polio.<sup>14</sup> I also found that Sanofi had market power in all four of these relevant markets, as evinced by high market shares combined with high barriers to entry, direct evidence of the ability to use that market power to restrain customers' decisions, and direct evidence of the ability to use that market power to anticompetitively inflate MCV4 prices above competitive levels.<sup>15</sup>

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<sup>14</sup> Elhauge Merits Report Parts I (MCV4); and II.A-C (DTaP, Polio, and Hib).

<sup>15</sup> *Id.*



63. In Part IV of his report, Professor Rubinfeld disputes my market definitions and my finding that Sanofi has substantial market power. All of Professor Rubinfeld's arguments that Sanofi did not possess substantial market power in the relevant markets in this case are fatally flawed. As I will demonstrate below, Professor Rubinfeld's proposed "All ACIP-Recommended Vaccines" market is not based on well-established economic principles for defining relevant markets, is not supported by the evidence, and is not credible. Indeed, by Prof. Rubinfeld's logic, even a 100% monopolist in a disease-based vaccine market would not have market power if it did not sell any other vaccines, despite the fact that healthcare providers would be required to purchase from that monopolist in order to vaccinate their patients and satisfy ACIP's recommendations. As I will elaborate below, none of Professor Rubinfeld's other arguments succeeds in refuting the clear evidence that Sanofi possessed substantial market power in all the relevant markets in this case either.

64. Professor Rubinfeld introduces his section on market definition and market power by erroneously stating that a firm's "ability to raise price above cost" is "generally not an antitrust concern."<sup>16</sup> The DOJ/FTC Horizontal Merger Guidelines that he cites to support this contention actually states only that "customers [not being] highly sensitive to price [is] not in itself of antitrust concern."<sup>17</sup> This statement is not made in the context of discussing market definition. Instead, this statement is made in a section entitled "Evidence of Adverse Competitive Effects," where the context is assessing the anticompetitive effects of a merger. Indeed, the cited statement refers the reader to a discussion in the market definition section 4.1.3 that affirmatively states that customer price insensitivity *is* relevant to market definition.<sup>18</sup>

65. Rather than being a statement about market definition, the statement that Professor Rubinfeld quotes simply observes in a parenthetical aside that the mere possession of unilateral market power is not itself an antitrust concern. That is because the antitrust concern in merger analysis is whether a proposed merger would create anticompetitive effects that *raise* prices above the prices the firm would have received with the market power the firm would possess without a merger. Likewise, here, the anticompetitive effect of antitrust concern in this case

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<sup>16</sup> Rubinfeld Report ¶100

<sup>17</sup> DOJ/FTC Horizontal Merger Guidelines §2.2.1 (2010).

<sup>18</sup> *Id.*

is not whether Sanofi would have had any market power to raise prices above cost in the but-for world; it plainly would have, as my but-for analysis found. The antitrust concern is that the Bundle has elevated prices above the levels that Sanofi would have been able to charge by just using the market power it earned through legitimate means (innovation, efficiency, etc.).

66. None of this means, as Professor Rubinfeld suggests, that possession of an “ability to raise price above cost” is irrelevant for defining the market and ascertaining whether market power exists. To be sure, in a footnote, the cited guidelines do note that ability to price above *incremental* cost can be consistent with competitive returns *if* the profit margin is necessary to cover fixed costs in a differentiated market.<sup>19</sup> Professor Rubinfeld, however, offers no evidence that Sanofi’s high margins are necessary to cover its fixed costs, and the actual evidence disproves any such claim by showing that in 2010 Sanofi had a 63% profit margin even if all its fixed costs are included.<sup>20</sup>

***A. Sanofi’s Market Shares in Professor Rubinfeld’s Purported “All ACIP-Recommended Vaccines” Market Are Irrelevant***

***1. Professor Rubinfeld Is Wrong that the Relevant Market Is All ACIP-Recommended Vaccines***

67. Professor Rubinfeld wrongly argues that “it is necessary to look at a broad set of vaccines (e.g., all ACIP recommended vaccines)” to properly evaluate Sanofi’s market power.<sup>21</sup> He proceeds to argue that, because Sanofi’s share in this improperly defined market ranged from 27% to 36% between 2010 and 2015, “Sanofi does not have monopoly power.”<sup>22</sup> This conclusion is erroneous because it is based on a fatally flawed market definition which is too broad to make economic sense.

68. Professor Rubinfeld’s placement of Menactra within his proposed “all ACIP recommended vaccines” market violates the fundamental basis of market

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<sup>19</sup> *Id.* n.3

<sup>20</sup> See Elhauge Merits Report ¶53.

<sup>21</sup> Rubinfeld Report ¶120

<sup>22</sup> *Id.* Monopoly power means a “substantial” or “significant” degree of market power. IIIA PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 801, at 318 (2d ed. 2002) (“substantial”); PHILLIP AREEDA, LOUIS KAPLOW & AARON EDLIN, ANTITRUST ANALYSIS 368 (6th ed. 2004).



definition in antitrust economics, which “focuses solely on demand substitution factors, i.e., on customers’ ability and willingness to substitute away from one product to another in response to a price increase or a corresponding non-price change such as a reduction in product quality or service.”<sup>23</sup> In order for other vaccines within Professor Rubinfeld’s posited “all ACIP recommended vaccines” market to properly be considered to be in the same market as Menactra, there would have to be some customers who would switch to the other vaccines included in his alleged market if the price of Menactra was too high. By including all ACIP recommended vaccines in his alleged market, however, Professor Rubinfeld includes vaccines used to protect against entirely different diseases than Menactra. Bundling does not make different vaccines reasonably interchangeable with each other, which is the relevant test for market definition.

69. For example, Professor Rubinfeld’s erroneously broad market definition would require that a pediatrician be able to substitute towards giving an additional Rotarix vaccine as a substitute for Menactra in response to a price increase in Menactra, even though Rotarix protects only against Rotavirus, and not meningococcal disease. Of course such a substitution would be absurd and fail to provide any protection against meningococcal disease and therefore fail to fulfill all of the ACIP recommendations. For this reason, no vaccines that fail to provide protection against Meningococcal disease groups A, C, W and Y can be used as substitutes for Menactra and therefore be in the same properly defined market. According to Professor Rubinfeld’s own Exhibit 2, the only vaccines that provide this protection are Menactra and Menveo.<sup>24</sup> Therefore, the only other vaccine in Professor Rubinfeld’s proposed “all ACIP recommended vaccines” market that could ever be properly used as a substitute by customers in response to an increase in Menactra prices is Menveo.

70. Professor Rubinfeld also observes that Novartis and Sanofi internally tracked their respective shares of a broad basket of vaccine products and

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<sup>23</sup> DOJ/FTC Horizontal Merger Guidelines § 4 (2010); ELHAUGE, U.S. ANTITRUST LAW & ECONOMICS 216-18 (2d ed. Foundation Press 2011).

<sup>24</sup> Rubinfeld Report Exhibit 2. The exhibit also includes Menhibrix as providing protection against Meningococcal ACWY, but notes in a footnote that it is recommended for routine use as a Hib vaccine, rather than as a Meningococcal vaccine, and that is recommended for children at high risk of meningococcal disease. Further, the data underlying Professor Rubinfeld’s alleged market shares amongst all ACIP Routinely Recommended Pediatric and Adolescent Vaccines in his Exhibit 4 do not include Menhibrix.

erroneously claims that this observation supports his market definition.<sup>25</sup> Properly defined antitrust markets are determined via the hypothetical monopolist test and do not necessarily correspond to how industry participants use the term “market.”<sup>26</sup> Firms use the term “market” in multiple contexts and for various reasons, with no necessary connection to how that term of art is used in antitrust economics. Even if one incorrectly based market definition on such evidence, it would not support Professor Rubinfeld’s market definition. By Professor Rubinfeld’s own admission, the firms in this industry also tracked their shares for individual vaccines, including the MCV4 vaccine.<sup>27</sup> Indeed, the Sanofi contracts that include the Bundle explicitly describe MCV4 vaccines as being in its own market, distinct from the other vaccine types (such as Polio, DTaP, Hib, and DTaP).<sup>28</sup> Further, numerous Sanofi and Novartis internal documents use the term “MCV4” market or “meninge market.”<sup>29</sup> Similarly, an internal Sanofi document acknowledged that Sanofi enjoyed “a monopoly situation with Menactra” before Menveo entered,

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<sup>25</sup> Rubinfeld Report ¶119

<sup>26</sup> DOJ/FTC Horizontal Merger Guidelines §4 (2010) (“Relevant antitrust markets defined according to the hypothetical monopolist test are not always intuitive and may not align with how industry members use the term ‘market.’”); Jonathan Baker, *Market Definition: An Analytical Overview*, 74 Antitrust L.J. 129, 139 (2007) (“There is no reason to expect that the concept of market employed by business executives when discussing issues of business strategy or marketing, whether it is in testimony or documents prepared for business purposes, would be the same as the concept of an ‘antitrust market’ or ‘relevant market’ defined for the purpose of antitrust analysis.”).

<sup>27</sup> Rubinfeld Report ¶119 (“Sanofi not only calculated its shares for individual vaccines, but also its share of total vaccine sales in the United States.”)

<sup>28</sup> MacDonald Declaration Exhibit B (Sanofi template for its PBG agreements. Section 4.1 lists distinct “required market share measurements” for Polio (90%), DTaP (90%), Hib (90%), Tdap (≥90% of prior 12 month sales) and MCV4 (called “Meninge”) (≥80% of prior 12 month sales); SP 01537099 (example Sanofi 4P system agreement, which lists separate “Market share measurement” requirements for Tdap, Meninge, Polio, Pertussis, and Hib”).

<sup>29</sup> For Sanofi internal documents, see, e.g., SP00027147 (“Total Meninge Market”); SP00003459 at SP00003462, (“Meninge Market Share”); SP00513135 at SP00513139 (“Maintain at least 70% [MCV4] market share in relationship to Novartis”. “Strategically emphasize [MCV4] share loss in the GSK loyal customer base”); SP0018963 at SP00189964 (“Novartis will buy 20% of the MCV4 market”); SP02123136 (“entrance of competition in the meningococcal meningitis vaccine U.S. market has been expected for some time. Menactra vaccine is favorably positioned relative to competitors”); SP00562179 at SP00562200 (providing list of “Meningitis Vaccine Market Assumptions”).

reflecting Sanofi's belief that MCV4 vaccines form a distinct market.<sup>30</sup> Finally, even the evidence Professor Rubinfeld points to shows only that, for some purposes, market participants analyzed shares of "total vaccine sales in the United States," which does not demonstrate that any market participants ever used Professor Rubinfeld's suggested market definition, which is instead "all ACIP recommended vaccines."<sup>31</sup>

71. In this case the only concern is with the appropriateness of the market definition from an antitrust economics perspective, not the appropriateness of the market definition for other business purposes. To illustrate the difference, consider managers at Kraft Foods, who may be interested for some purposes in measuring its overall share of consumer goods. This does not mean that each product in that broad group is in the same antitrust market as all other products within that group. For example, Cool Whip and Oscar Mayer hot dogs might both be consumer goods, but no one would consider switching from one to the other in response to a price increase in one of them. Because that is the critical factor to be used in evaluating the appropriateness of a market definition from an antitrust perspective,<sup>32</sup> Cool Whip and Oscar Mayer hot dogs cannot be in the same antitrust market, regardless of whether Kraft Foods considered them to be within the same market for certain business purposes.

## *2. Professor Rubinfeld Is Wrong that Bundling Renders Products within a Bundle a Single Market*

72. Professor Rubinfeld attempts to defend the relevance of his suggested "all ACIP recommended vaccine" market by offering "several reasons that portfolio-level competition is an important competitive constraint in the vaccine industry."<sup>33</sup> All of his reasons amount to a claim that all ACIP vaccines should be treated as a single product because vaccines are frequently bundled.<sup>34</sup> First, Professor Rubinfeld argues that all ACIP vaccines should be treated as a single product because customers must generally choose between vaccine portfolios that sellers have bundled together.<sup>35</sup> Second, he argues that all ACIP vaccines should

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<sup>30</sup> SP 01493594 at SP 01493595-596 ("Sanofi pasteur US currently enjoys a monopoly situation with Menactra.")

<sup>31</sup> Rubinfeld Report ¶119

<sup>32</sup> DOJ/FTC Horizontal Merger Guidelines §4 (2010).

<sup>33</sup> Rubinfeld Report ¶107

<sup>34</sup> Rubinfeld Report ¶108-121.

<sup>35</sup> Rubinfeld Report ¶108-110.

be treated as a single product because “many physicians are members of PBGs or health systems that typically have contracts with only a subset of vaccine manufacturers ... for the full portfolio of a manufacturer’s vaccines.”<sup>36</sup> Third, he argues that all ACIP vaccines should be treated as a single product because some vaccines are sometimes medically packaged together with other vaccines as combination vaccines.<sup>37</sup> Fourth, he argues that all ACIP vaccines should be treated as a single product because vaccine makers often compete by offering bundles of vaccines.<sup>38</sup>

73. As an economic matter, Professor Rubinfeld is wrong that frequent bundling makes all ACIP recommended vaccines a single product market. But before explaining why this is so, it is worth noting that his factual premise – that vaccine makers, *including Sanofi with respect to Menactra*, frequently bundle – is internally inconsistent with claims he makes elsewhere in his report. For example, his argument that customers considering Menactra must consider not only its price but the price of the rest of the Sanofi Bundle compared to rival prices for the bundled products necessarily presupposes that Sanofi imposes a bundle.<sup>39</sup> Otherwise, failing to lower the price for Menactra would have nothing to do with losing the whole portfolio of vaccines. This contradicts his argument elsewhere that “Sanofi’s contracts do not bundle at the purchaser level.”<sup>40</sup> Likewise, he argues in this section that many physicians are members of PBGs or health systems with bundled contracts that limit them to a subset of vaccine makers like Sanofi.<sup>41</sup> This contradicts his argument elsewhere that “Sanofi’s PBG contracts do not impose bundling requirements on individual PBG members. Rather, members pay the same discounted contract prices irrespective of the particular portfolio of products they purchase. Moreover, health system contracts provide for single-product loyalty rebates, and do not have multi-product loyalty requirements.”<sup>42</sup> Finally, he argues throughout this section that bundling is rampant not only for MCV4 but also for all vaccines.<sup>43</sup> This argument contradicts his argument in his

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<sup>36</sup> Rubinfeld Report ¶111.

<sup>37</sup> Rubinfeld Report ¶112-115.

<sup>38</sup> Rubinfeld Report ¶116-118.

<sup>39</sup> Rubinfeld Report ¶108-110.

<sup>40</sup> Rubinfeld Report ¶15; *see also id.* Part V; *see generally infra* Part II.

<sup>41</sup> Rubinfeld Report ¶111.

<sup>42</sup> Rubinfeld Report ¶15; *see also id.* ¶147 (“A physician who is a member of a PBG with a Sanofi contract and wants to purchase Menveo is not restricted by Sanofi from doing so.”); *id.* Part V.

<sup>43</sup> Rubinfeld Report ¶108-121.

damages section that other vaccine markets do not bundle and thus offer a good yardstick for what MCV4 prices would have been without bundling.<sup>44</sup>

74. In any event, Professor Rubinfeld is simply wrong that frequent bundling makes all ACIP recommended vaccines a single product market. To begin with, if a practice of bundling meant that two products were single product, then tying would never be considered anticompetitive because any tied products would, by virtue of the tie itself, cease to be separate markets capable of being tied. This Catch-22 argument is not supported by standard antitrust economics. Instead, antitrust economics concludes that bundled products are separate products whenever there is sufficient separate demand for the two items to make it efficient to supply them separately.<sup>45</sup>

75. Professor Rubinfeld's suggestion that all ACIP recommended vaccines form a single indistinguishable product market fails this separate product test. All that is necessary to establish the existence of separate product markets is that "there must be sufficient customer demand so that it is efficient for a firm to provide [one item] separately from [the other]."<sup>46</sup> One can infer the efficiency of selling a product separately if the items are sold unbundled more than 10% of the time in some competitive analogue (such as in either geographic markets that are competitive or the competitive fringe of the relevant market).<sup>47</sup> Here, Novartis' ability to sell Menveo vaccines for years without offering any other vaccines approved for use in ACIP's routine vaccine schedule definitively establishes there is sufficient consumer demand to make it efficient to sell the MCV4 vaccine separately from other vaccines and thus shows MCV4 is a separate market. Likewise, the fact that Sanofi sold Menactra separately from pediatric vaccines before Menveo entered shows that it clearly is efficient to sell MCV4 and pediatric vaccines separately. More generally, while Professor Rubinfeld provides some anecdotes of Sanofi and other vaccine makers bundling, he offers no evidence that the percentage of unbundled sales of all ACIP recommended vaccines are less than 10%.<sup>48</sup>

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<sup>44</sup> Rubinfeld Report ¶ 689-690; *see also id.* Part XI.C.1; *see generally infra* Part X.A.1.

<sup>45</sup> X AREEDA, ELHAUGE, & HOVENKAMP, ANTITRUST LAW ¶1743b (1996) ("For [two items] to be considered two distinct products, there must be sufficient consumer demand so that it is efficient for a firm to provide [one item] separately from [the other]") (alternations in original).

<sup>46</sup> *Id.*

<sup>47</sup> *Id.* ¶ 1744d-e.

<sup>48</sup> Rubinfeld Report ¶108-121.

76. Indeed, a fatal flaw with Professor Rubinfeld's claim that *all* ACIP recommended vaccines form a *single* market is that it is actually impossible for *any* manufacturer to offer a bundle that includes all ACIP recommended vaccines. Exhibit 2 in his own report clearly illustrates this fact, as no manufacturer column in it contains a vaccine to address every disease category. Sanofi itself cannot supply many elements of the recommended vaccine schedule, including Hep B, Rotavirus, MMR, and Varicella. Thus, 100% of vaccine sales unbundle at least some ACIP recommended vaccines, and *literally* 0% of vaccine sales are bundled in a way that conforms to Professor Rubinfeld's market definition.

77. Professor Rubinfeld does offer statistics showing that 23% of ACIP recommended vaccines were sold in combination vaccines.<sup>49</sup> But none of those combination vaccines included *all* ACIP recommended vaccines, and thus none can justify his market definition. Further, his statistics necessarily mean that 77% of ACIP recommended vaccine sales were outside any such medically packaged bundles, which affirmatively indicates the vaccines should be treated as separate products from each other. Moreover, *none* of the combination vaccines include MCV4, and thus their existence cannot possibly just justify defining any single product market for ACIP recommended vaccines that includes MCV4.<sup>50</sup>

78. Even if, contrary to fact, all ACIP vaccines were purchased in bundles satisfying the ACIP routine vaccination schedule, the market share possessed by Menactra in such bundles would necessarily be the same as was calculated by focusing on the individual MCV4 market. If vaccines were in fact always purchased in such bundles, then every complete bundle would be required to contain either Menactra or Menveo, as they are the only vaccines recommended for routine use to protect against meningococcal disease. In such a case, the

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<sup>49</sup> Rubinfeld Report ¶113.

<sup>50</sup> The only combination vaccine which covers meningococcal disease is Menhibrix, *see* Rubinfeld Report Exhibit 2, but it is not ACIP recommended for routine use because it only immunizes against serogroups C and Y. *See* Elhauge Merits Report ¶¶ 34, 37.

A uniform competitive practice of selling the three pediatric vaccines in a combination vaccine might be relevant to whether the three pediatric vaccines were a single product. However, even Rubinfeld's statistics shows they were sold at least 28% of the time outside a combination vaccine, *see* Rubinfeld Report ¶114, thus indicating they were separate products from each other. Even if (contrary to fact) the combination vaccines did show that the three pediatric vaccines are part of a single product, that would not alter the fact that they are a separate product from MVC4.



economically appropriate way to determine the market share of Menactra would be to add up all the bundles sold containing Menactra and divide by the total number of bundles sold. Since each bundle would need to contain either Menactra or Menveo, this would provide exactly the same result as the simpler method of simply dividing Menactra doses sold by Menactra plus Menveo doses sold. In contrast, Professor Rubinfeld calculates the market share as the doses of all vaccines made by one manufacturer divided by the total number of doses of all vaccines administered. This calculation wrongly implies that the market power of vaccines in any one disease-based vaccine market is diminished by the existence of other vaccines outside that market. Indeed, by Professor Rubinfeld's logic, even a 100% monopolist in a disease-based vaccine market would not have market power if it did not sell any other vaccines, even though every pediatrician would in fact have no choice but to purchase from that monopolist in order to satisfy ACIP's recommendations. This makes no economic sense.

79. Professor Rubinfeld's argument that bundling by other firms with market power makes the bundle a single product that is immune from scrutiny also simply ignores the relevant economics of what makes bundling anticompetitive. Inefficient bundling can force other firms to bundle to stay in the market, which merely spreads the inefficient bundling rather than rendering it procompetitive.<sup>51</sup> More generally, the use of inefficient bundling by multiple vaccine manufacturers only worsens the anticompetitive effects caused by bundling, rather than rendering the practice efficient.<sup>52</sup> Immunizing bundling due to the use of bundling by other significant firms starkly conflicts with antitrust economics, which cumulates their foreclosure shares to treat such multiple bundling as more anticompetitive.<sup>53</sup> Indeed, Professor Rubinfeld's claim here conflicts with his own scholarly articles on bundling, which emphasize that bundling by multiple firms *worsens* the anticompetitive effects and requires cumulating their foreclosure shares to take this into account.<sup>54</sup>

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<sup>51</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 476 (2009).

<sup>52</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 475 (2009); Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 194, 214–15, 220 (2009).

<sup>53</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 476 (2009).

<sup>54</sup> Aaron Edlin & Daniel Rubinfeld, *Exclusion or Efficient Pricing?*, 72 ANTITRUST L.J. 119, 152, 156 (2004).

80. Contrary to Professor Rubinfeld's arguments here, the existence of other rivals using bundling in the vaccine industry does not eliminate Sanofi's market power in the market for vaccines protecting against meningococcal disease, nor does it render the practice of bundling efficient. Because the vaccine markets are differentiated, firms are likely to have dominance over distinct parts of the market.<sup>55</sup> Further, the economic literature shows that when both the tying and tied markets are differentiated (as the tying pediatric vaccines and tied MCV4 vaccine are here), "having multiple firms offer bundled discounts decreases social and consumer welfare by producing an inefficient product mix and excessive bundling."<sup>56</sup>

81. Professor Rubinfeld's suggestion, in a footnote, that vaccine markets should be considered as "cluster markets" is also wrong, and rebutted by the very source he cites in support of the notion.<sup>57</sup> According to the source he cites, "courts should only cluster together 'transactional complements.' Goods are transactional complements if buying them from a single firm significantly reduces consumers' transaction costs. Transactional complementarity effectively ties consumer purchases of multiple products to individual firms and thereby makes the cluster the relevant product."<sup>58</sup> Further academic literature supports the point that cluster markets should only be used when it is so costly and inconvenient for customers to purchase the components of the cluster from multiple different sellers that they would prefer to pay monopoly prices for the cluster from a single seller than accept separate provision at competitive prices.<sup>59</sup> Professor Rubinfeld provides no

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<sup>55</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 Harvard Law Review 397, 475 (2009) ("Moreover, in a differentiated linking market, it is entirely possible that the two firms might have linking power over different sets of buyers, enabling both of them to inflict power effects.").

<sup>56</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 475-76 & n. 244 (2009), citing Joshua S. Gans & Stephen P. King, *Paying for Loyalty: Product Bundling in Oligopoly*, 54 J. INDUS. ECON. 43, 45-46 (2006); Carmen Matutes & Pierre Regibeau, *Compatibility and Bundling of Complementary Goods in a Duopoly*, 40 J. INDUS. ECON. 44, 46-47 (1992); Barry Nalebuff, *Competing Against Bundles*, in INCENTIVES, ORGANIZATION, AND PUBLIC ECONOMICS 323, 332 & n.14 (Peter J. Hammond & Gareth D. Myles eds., 2000).

<sup>57</sup> Rubinfeld Report n.172.

<sup>58</sup> Ian Ayres, *Rationalizing Antitrust Cluster Markets*, 97 YALE L.J. 109, 110-11 (1985).

<sup>59</sup> II AREEDA & HOVENKAMP, ANTITRUST LAW ¶1565c (2011) (a cluster is a relevant market if "most customers would be willing to pay monopoly prices for the convenience of receiving the defendant's grouping of products"); Vita et al., *Economic Analysis in Health Care*

evidence that this is the case here, and any such assertion would plainly conflict with the fact that vaccines are frequently offered unbundled.

82. Professor Rubinfeld may mean to suggest that the fact that customers generally purchase in bundles from a few manufacturers means that customers prefer to purchase all their vaccines from as few manufacturers as possible.<sup>60</sup> However, that inference is unwarranted because the whole point of imposing penalties on unbundled purchases is to punish customers for not buying in bundles. Indeed, the evidence affirmatively cuts against any inference that customers prefer to buy vaccines from as few manufacturers as possible. If they did, then GSK would be at a competitive disadvantage because using their vaccines requires customers to purchase from a greater number of vaccine manufacturers. Instead, the evidence shows that GSK sells more vaccines than any other manufacturer. Professor Rubinfeld's Exhibit 2 makes clear that any provider wishing to purchase the full range of ACIP-recommended vaccines could do so by purchasing from three manufacturers, Sanofi, Merck, and Pfizer. In contrast, any provider that bought vaccines from GSK would (until its 2015 acquisition of Menveo) have had to buy from at least four manufacturers because only Pfizer sold pneumococcal vaccines, only Merck sold MMR and Varicella vaccines, and only Sanofi and Novartis sold MCV4 vaccines. The fact that GSK had the highest market share in 2013 and 2014 according to Rubinfeld's calculations in his purported "all ACIP recommended vaccines market" (Rubinfeld Exhibit 4) demonstrates that this requirement to work with a greater number of manufacturers in order to use their products did not effectively constrain GSK in the market. Thus, even Rubinfeld's own data and incorrect market definition disprove his contention that customers find it efficient to purchase from as few manufacturers as possible.

83. In any event, even if this (contrary to fact) Professor Rubinfeld were right that customers prefer to purchase from fewer manufacturers, that supposed fact would not, as Professor Rubinfeld claims, constrain Sanofi's market power. To the contrary, it would only strengthen Sanofi's market power because it can offer other vaccines beyond Menactra that are recommended for routine pediatric use, while Novartis could not offer any vaccines recommended for routine pediatric use beyond Menveo.

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*Antitrust*, 7 J. CONTEMP. HEALTH L. & POL'Y 73, 81 (1991) (A cluster approach is economically sensible when "the cost to consumers of assembling their own outputs from this collection of inputs in response to a price increase" is prohibitively high).

<sup>60</sup> Rubinfeld Report ¶111.

***B. None of Professor Rubinfeld's Other Arguments Rebut the Fact that Sanofi Possessed Market Power in Each Market***

*1. My Analysis Is Not Distorted by Inflated Market Shares*

84. Professor Rubinfeld argues that I inflated Sanofi's MCV4 market share by not including sales to the CDC.<sup>61</sup> Including CDC sales, however, is economically inappropriate because the purpose of calculating a firm's market shares is to help infer whether a firm has a market power to raise prices. In this case, the prices paid by the CDC are determined by private prices,<sup>62</sup> so the private market shares are what best indicate whether Sanofi has market power over prices. In addition, CDC shares are distorted by the fact that Sanofi has a regulatory monopoly in some states,<sup>63</sup> but that regulatory monopoly does not influence prices due to the formulaic fashion in which CDC prices are obtained.

85. Nor is Professor Rubinfeld correct in his assertion that my method of excluding CDC sales produced a higher Sanofi market share in the MCV4 market. In fact, using Professor Rubinfeld's data supporting Exhibits 5 and 6, the net effect of including only private sales in the time period I analyzed in my report, from July 2010 through August 2013, was actually to *deflate* Sanofi's market share by 1%, from 81.7% in the total market to 80.7% in the private market.<sup>64</sup> I calculated market shares only from July 2010 through August 2013 because that was the only period for which Sanofi produced data for me to analyze. Even if one includes the entire period up until September 2015 as Professor Rubinfeld does, using data that was not produced to me by Sanofi (but was provided for the first time in conjunction with Prof. Rubinfeld's report), the effect of including only private sales increases Sanofi's market share by a negligible 0.2%, from 79.4% in the total market to 79.6% in the private market.<sup>65</sup> These calculations illustrate that regardless of whether sales to the CDC are included in the market or what time

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<sup>61</sup> Rubinfeld Report ¶125.

<sup>62</sup> Elhauge Merits Report ¶185.

<sup>63</sup> SP 02074829 listing Alaska, Rhode Island, South Dakota, and Vermont as "Non-Choice Favorable" states under the "Meninge Choice Position" column in the "MENINGE" tab. Another spreadsheet, SP 00830185 explains that "Non-Choice" means "State does not allow providers to choose which brand they want within given product category" and "Favorable" means "State offers only s.p. [Sanofi] products within a given product category."

<sup>64</sup> "MRebut23 mct shares priv vs total 7-2010 to 8-2013.csv".

<sup>65</sup> "MRebut23 mct shares priv vs total up to Sep 2015.csv".

period is used in the analysis, Sanofi had at least a 79% market share, which confirms monopoly power.

86. Professor Rubinfeld argues that his market share calculations negate Sanofi market power over MCV4 because they show Menactra market share declining from 94% in 2010 to 75% in 2014.<sup>66</sup> However, Professor Rubinfeld cites no economic support for his conclusion that a market share of 75% does not suffice to infer monopoly power when coupled with high entry barriers. Nor does he cite any economic support for his claim that declining market shares disprove monopoly power. Any entry necessarily reduces the market share of an incumbent monopolist from 100% to something less, and clearly the mere existence of an entrant does not suffice to disprove monopoly power. The fact that a firm's market share declines from gargantuan to enormous may mean it has less monopoly power than it used to have, but that does not mean it does not have monopoly power at each point in time. Indeed, "A decline in market share might indicate that market power exists and is being exercised."<sup>67</sup> This is because exercising monopoly power to charge high prices generally invites rival expansion and entry over time. Nor does a decline in market share disprove a causal link between that monopoly power and exclusionary conduct. To the contrary, it is precisely when a dominant firm's market share is declining on the merits that it is most motivated to slow down the erosion of its market share using exclusionary conduct.<sup>68</sup>

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<sup>66</sup> Rubinfeld Report ¶¶126-127.

<sup>67</sup> PHILLIP E. AREEDA, HERBERT HOVENKAMP & JOHN L. SOLOW, ANTITRUST LAW ¶835.2a (1995).

<sup>68</sup> Elhauge, *Defining Better Monopolization Standards*, 56 STANFORD LAW REVIEW 253, 337 (2003) ("A causal link between exclusionary conduct and monopoly power is not at all disproved by evidence that the alleged monopolist's prices, profits, or market share declined during the period of exclusionary conduct. Monopolizing activities are frequently undertaken not to create monopoly power but rather to maintain and slow down the erosion of existing monopoly power. In fact, it is precisely when a monopolist sees its monopoly power waning because of a new market threat or technology that it is most desperate to cling to that power, and thus most tempted to use anticompetitive conduct to slow down that erosion and maintain some degree of monopoly power for as long as possible. Thus, there is no reason to assume exclusionary conduct will typically increase monopoly prices, profits, or shares. Rather its anticompetitive effect may typically be to prevent monopoly prices, profits, or shares from dropping further and faster, often by slowing down a market shift to a better or cheaper rival or new product."); AREEDA & HOVENKAMP, XI ANTITRUST LAW ¶1802c (3d ed. 2011) ("suppose an established manufacturer has long held a dominant position but is starting to lose market share to an aggressive young rival. A set of strategically planned exclusive-dealing contracts may slow the rival's expansion by requiring it to develop alternative outlets for its product, or rely at least



87. Relatedly, Professor Rubinfeld argues that Sanofi lacks market power because “Sanofi faces substantial competition” in the market for meningococcal vaccines.<sup>69</sup> To support this he points to a single competing product, Menveo, and four other vaccines which do not provide protection against all serogroups and which, in contrast to Menactra and Menveo, are not recommended by the CDC for routine pediatric use and thus are not reasonably interchangeable with Menactra and Menveo. Consequently, these other vaccines are not in the same market as Menactra and Menveo. Professor Rubinfeld offers no rebuttal to my previous analysis demonstrating why these partial vaccines are not reasonably interchangeable with Menactra and Menveo. Focusing then on Menactra and Menveo, Professor Rubinfeld is in essence arguing that the mere existence of another competitor, regardless of that competitor’s market share, makes for substantial competition. This runs counter to standard antitrust economics which does not require firms to have 100% market share in order to have market power.<sup>70</sup>

88. In the pediatric vaccine markets at issue in this case, Professor Rubinfeld makes similar mistaken arguments. He claims I miscalculated market shares in the pediatric markets by excluding CDC sales.<sup>71</sup> For reasons noted above, it is economically inappropriate to include CDC sales. Further, even if one does so, the effect on pediatric market share calculations is small and the market shares remain enormous and sufficient to infer monopoly power. In my report I analyzed shares in the Pediatric vaccine markets (DTaP, Hib, and Polio) from January 2010 through August 2013.<sup>72</sup> During this period, Table 1 below shows that Sanofi’s market shares remain significant and indicative of market power in all three Pediatric vaccine markets even if one were to wrongly include sales to CDC in the calculation of market shares.

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temporarily on inferior or more expensive outlets. Consumer injury results from the delay that the dominant firm imposes on the smaller rival’s growth.”).

<sup>69</sup> Rubinfeld Report ¶124

<sup>70</sup> 5 AREEDA & HOVENKAMP, ANTITRUST LAW ¶515 (Wolters Kluwer IntelliConnect CCH) (2016) (“A firm could have substantial market power without accounting for all or even most of a market.”).

<sup>71</sup> Rubinfeld Report ¶138-139.

<sup>72</sup> My MCV4 market shares begin later, in July 2010, because the IMS DDD data Sanofi provided to me did not include Menactra sales before July 2010.



<b>Table 1: Sanofi Shares in Pediatric Vaccine Markets January 2010 – August 2013<sup>73</sup></b>		
<b>Market</b>	<b>Sanofi Share Private-Only</b>	<b>Sanofi Share Private + CDC</b>
DTaP	64%	59%
Polio	73%	67%
Hib	87%	85%

89. Additionally, the impact of including CDC sales is even smaller when focusing on the most relevant period: April 2010 (the first full month after Menveo entered the MCV4 market) to December 2010. Because this is the time period that immediately followed Menveo entry, it is the most relevant period for assessing the market power to impose the Bundle and its anticompetitive effects because it is right after the Bundle was imposed and Menveo entry occurred. Table 2 shows that in the MCV4 market and all three Pediatric vaccine markets, the effect of including sales to the CDC in market share calculations is insignificant and the resulting market shares indicate significant market power in all relevant markets whether or not sales to the CDC are included in the market share calculations.

<b>Table 2: Sanofi Shares in Pediatric and MCV4 Vaccine Markets April 2010 – December 2010<sup>74</sup></b>		
<b>Market</b>	<b>Sanofi Share Private-Only</b>	<b>Sanofi Share Private + CDC</b>
DTaP	67%	67%
Polio	74%	73%
Hib	89%	87%
MCV4	90%	92%

90. Moreover, although Professor Rubinfeld acknowledges that one of the reasons that I concluded that the high market shares of Sanofi pediatric markets indicates market power is that “the products in each alleged relevant market are differentiated,” he never offers any rebuttal of that point.<sup>75</sup> Instead, he makes the same economically erroneous argument he made for the MCV4 market: that the

<sup>73</sup> “MRbut23 Ped Shares priv vs total 1-2010 to 8-2013.csv”.

<sup>74</sup> “MRbut23 Ped and MCV4 shares priv vs total 4-2010 to 12-2010.csv”.

<sup>75</sup> Rubinfeld Report ¶136.

existence of any competitors disproves market power.<sup>76</sup> As noted above, his argument conflicts with standard antitrust economics because, among other things, his methodology would require 100% market share to have market power, which is clearly erroneous.

## *2. Significant Barriers to Entry Exist in all of the Relevant Vaccine Markets*

91. While acknowledging “the existence of some entry barriers,” Professor Rubinfeld argues that entry into *other* vaccine markets somehow proves that entry “barriers are not so high to exclude entry” in the relevant vaccine markets in this case.<sup>77</sup> These other markets are irrelevant, however, to the vaccine markets at issue in this case. Professor Rubinfeld did not point to any entry in any of the MCV4, DTaP, IPV, or Hib markets in this case during the relevant time period, nor do his market share calculations in these markets show any such entry.<sup>78</sup> The lack of entry despite high profit margins demonstrates the existence of entry barriers.

92. Although he downplays entry barriers in this part of his report, Professor Rubinfeld actually details enormous entry barriers in other parts of his report, saying that a new vaccine requires \$600-800 million in research and development and \$50-300 million for a new manufacturing plant, difficult regulatory approvals, and can take more than 10 years.<sup>79</sup> Novartis is the only firm to enter the MCV4 market, and it states its entry cost was [REDACTED].<sup>80</sup> Apparently recognizing the weakness of his arguments regarding entry barriers, Professor Rubinfeld admits that any constraint on market power depends “less on the possibility of entry and more on the extent to which incumbent firms compete against one another.”<sup>81</sup>

93. Professor Rubinfeld argues that there are no substantial constraints on rival expansion.<sup>82</sup> His argument has many flaws. First, it directly conflicts with his own argument elsewhere in his report that there substantial barriers to

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<sup>76</sup> Rubinfeld Report ¶136.

<sup>77</sup> Rubinfeld Report ¶128.

<sup>78</sup> Rubinfeld Report ¶53-56, Exhibits 5-12.

<sup>79</sup> Rubinfeld Report ¶22-27.

<sup>80</sup> Elhauge Merits Report n.45.

<sup>81</sup> Rubinfeld Report ¶128.

<sup>82</sup> Rubinfeld Report ¶130.

expansion in the MCV4 market.<sup>83</sup> Second, his argument is irrelevant. Sanofi's market power rests not on an inability of its sole rival to technically expand output, but rather from the fact that Sanofi has the dominant vaccine in a differentiated market with only two firms and enormous barriers to any further entry. Nor does the ability of the sole rival to expand provide any relevant constraint on a market division between the only two firms in the market. Third, Professor Rubinfeld is wrong that low barriers to expansion are established because GSK's Pediarix market share expanded when there was a shortage of Sanofi's Pentacel vaccine.<sup>84</sup> That tells us nothing about barriers to expansion in the MCV4 market. Fourth, Professor Rubinfeld is wrong that economies of scale indicate a low barrier to expansion that disproves market power.<sup>85</sup> Even though expanding production lowers average costs, unless an equally efficient rival is able to start producing more vaccines than Sanofi, it will always have higher costs than Sanofi.<sup>86</sup> Such economies of scale are particularly problematic where, as here, there are switching costs that have been exacerbated by exclusionary agreements like the Bundle. For this reason, economies of scale have long been regarded as an entry barrier than increases the inference of market power.<sup>87</sup> Fifth, Rubinfeld wrongly ignores the fact that the Sanofi Bundle created a barrier to expansion based on his mistaken claim that the Bundle had no restraining effect.<sup>88</sup> As shown below, his claim is clearly false and conflicts with Sanofi and Novartis's own internal assessments about the restraining effect of the Bundle on Menveo expansion.<sup>89</sup> Sixth, Rubinfeld ignores the fact that, even according to his own calculations, Menveo has not been able to grow past a 25% market share in over five years despite much

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<sup>83</sup> Rubinfeld Report ¶¶612-618.

<sup>84</sup> Rubinfeld Report ¶¶115, ¶130.

<sup>85</sup> Rubinfeld Report ¶130.

<sup>86</sup> Elhauge Merits Report ¶51.

<sup>87</sup> David Harbord & Tom Hoehn, Barriers to Entry and Exit in European Competition Policy, 14 Int'l Rev. L. & Econ. 411, 416 (1994) ("Economies of scale when fixed costs are (at least partially) sunk can create an entry barrier"); Daniel Wall, *Beyond Market Share--Strategies For The High Market Share Firm*, ANTITRUST 26 (Fall/Winter 1991) ("The primary conditions that economists have identified as potential entry barriers are economies of scale and scope, absolute cost advantages..., product differentiation, consumer switching costs, and financial exposure from nonrecoverable, or sunk, costs of entry."); M. PORTER, COMPETITIVE STRATEGY 7-13 (1980); JOE S. BAIN, BARRIERS TO NEW COMPETITION (1956).

<sup>88</sup> Rubinfeld Report n.201.

<sup>89</sup> See Elhauge Merits Report Part V.E.1. (Sanofi and Novartis documents acknowledging restraining effect of the Bundle); *infra* Part V (refuting Professor Rubinfeld's claims that the Bundle did not restrain Menveo expansion).

lower prices.<sup>90</sup> This clearly shows that Sanofi market power has not been constrained by Menveo's technical ability to expand output.

### *3. The Existence of Large Buyers Does Not Disprove Market Power*

94. Professor Rubinfeld argues that Sanofi's market power was effectively constrained by the presence of large customers with significant buying power.<sup>91</sup> His assertion that these buyers possessed sufficient power to constrain Sanofi's market power is contradicted, however by the fact that Sanofi was able to impose take it or leave it pricing on large PBGs, GPOs and other systems. Further, Sanofi's prices even for the largest customers, the CDC, FSS, and Kaiser were all supracompetitive, indicating Sanofi's market power in spite of any buyer power these entities possessed. Sanofi earned very large profit margins on sales to these buyers and was able to impose prices significantly in excess of those they would have charged in the but-for world absent their anticompetitive bundling.<sup>92</sup>

95. Professor Rubinfeld argues that Sanofi lacks market power because some large buyers were able to negotiate discounts from the prices charged other buyers. This argument conflicts with accepted antitrust economics, which does "not presume that the presence of powerful buyers alone forestalls adverse competitive effects flowing from the merger. Even buyers that can negotiate favorable terms may be harmed by an increase in market power."<sup>93</sup> Instead, powerful buyers are likely to lessen market power only "if powerful buyers have the ability and incentive to vertically integrate upstream or sponsor entry, or if the conduct or presence of large buyers undermines coordinated effects."<sup>94</sup> Neither of these factors exists here. First, Sanofi has never claimed, nor has Professor Rubinfeld pointed to any evidence showing, that the CDC, FSS, and Kaiser had the ability or desire to purchase vaccine manufacturers or sponsor new entrants into the MCV4 market. Second, the market power at issue here is Sanofi's single firm market power, which does not depend on any coordination. Even if it did, there is

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<sup>90</sup> Rubinfeld Report Exhibit 6.

<sup>91</sup> Rubinfeld Report ¶¶131-132.

<sup>92</sup> Elhauge Merits Report ¶¶351-352.

<sup>93</sup> DOJ/FTC Horizontal Merger Guidelines §8 (2010) ("the Agencies do not presume that the presence of powerful buyers alone forestalls adverse competitive effects flowing from the merger. Even buyers that can negotiate favorable terms may be harmed by an increase in market power").

<sup>94</sup> *Id.*

not in fact any price coordination occurring in the private market which they could undermine.<sup>95</sup>

96. Professor Rubinfeld's method argument that powerful buyers disprove Sanofi market power also ignores the point that accepted methodology stresses that "even if some powerful buyers could protect themselves, [one should] consider whether market power can be exercised against other buyers."<sup>96</sup> In other words, powerful buyers do not eliminate seller market power if the powerful buyers just protect themselves rather than the market as a whole. In fact, the evidence Professor Rubinfeld cites shows that this is exactly what happened, with large buyers receiving special discounts that did not extend to the market as a whole.<sup>97</sup>

#### *4. Direct Evidence Also Proves Monopoly Power*

97. In addition to showing monopoly power by establishing dominant market shares and high entry barriers, I also (in the alternative) demonstrated monopoly power by providing direct evidence of a power to exclude or control prices. Professor Rubinfeld dismisses the powerful direct evidence of Sanofi's power on two grounds, neither of which is meritorious. First, he notes that Novartis was not driven entirely out of the market and did grow somewhat over time.<sup>98</sup> For reasons noted above, the lack of a 100% market share does not disprove monopoly power and the fact that the rival share grew from past baselines does not mean the rival was not excluded from the foreclosed market in a way that suppressed rival output below but-for levels. Indeed, his assertion here that one should use a past baseline directly conflicts with his correct conclusion elsewhere in his report that one should use a but-for baseline.<sup>99</sup> Second, he disputes any restraining effect on Menveo sales.<sup>100</sup> This argument fails for all the reasons detailed below, including the fact that the restraining effect is confirmed by market data and acknowledged by Sanofi and Novartis's own internal documents.<sup>101</sup>

98. In any event, Professor Rubinfeld does not deny that direct evidence of a power to raise prices above competitive levels suffices to prove monopoly

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<sup>95</sup> See *infra* Part VIII.A.

<sup>96</sup> DOJ/FTC Horizontal Merger Guidelines §8 (2010).

<sup>97</sup> Rubinfeld Report ¶132.

<sup>98</sup> Rubinfeld Report ¶134

<sup>99</sup> Rubinfeld Report ¶541, ¶544.

<sup>100</sup> Rubinfeld Report ¶134, ¶140.

<sup>101</sup> See *infra* Part V.

power, even absent evidence of high market shares or a direct evidence of a power to exclude. Indeed, in his academic writings, he states that one must show only that defendants had “the power to raise price substantially above competitive levels” in order to demonstrate market power by direct evidence.<sup>102</sup> He also agrees that, once such direct evidence is established, market definition and market shares are no longer even necessary to establish market power.<sup>103</sup> Instead, he argues that I failed to prove a power to raise prices above competitive levels for two reasons. First, he asserts that my but-for analysis failed to prove that Sanofi was able to raise prices above competitive levels.<sup>104</sup> This argument fails for all the reasons detailed below.<sup>105</sup> Second, he argues that even if my but-for analysis is correct, it only shows a shared market power between Sanofi and Novartis.<sup>106</sup> He is mistaken because the single firm market power of Sanofi was what enabled Sanofi to impose a bundle that divided the market in a way that raised prices way above the competitive levels established by the but-for analysis. This is not a case where the market division was created via a horizontal agreement.

## **II. SANOFI’S CONTRACTS AND CONDUCT DID IN FACT IMPOSE AND ENFORCE A BUNDLE THAT ANTICOMPETITIVELY RESTRICTED PURCHASERS’ DECISIONS**

99. In my opening merits report, I showed using Sanofi’s contracts, documents, data, and deposition testimony that Sanofi bundled customers’ purchasing decisions by requiring them to commit to Menactra loyalty in order to avoid paying higher penalty prices on Sanofi’s “Pediatric” (DTaP, Hib, and Polio) vaccines.<sup>107</sup> I explained that Sanofi imposed the Bundle on both customers who were members of Sanofi PBGs and customers who were part of health systems on Sanofi’s “4-product” health system contracts.<sup>108</sup>

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<sup>102</sup> Aaron Edlin and Daniel Rubinfeld, *Exclusion or Efficient Pricing? The “Big Deal” Bundling of Academic Journals*, 72 Antitrust Law Journal No. 1, 119, 140 (2004).

<sup>103</sup> *Id.* at 141 (“Market definition is only a traditional means to the end of determining whether power over price exists. Power over price is what matters. As is stated in the Areeda, Elhauge, and Hovenkamp treatise, cases such as *Microsoft*, and the Areeda, Kaplow, and Edlin casebook, if power can be shown directly, there is no need for market definition: the value of market definition is in cases where power cannot be shown directly and must be inferred from sufficiently high market share in a relevant market.”).

<sup>104</sup> Rubinfeld Report ¶135.

<sup>105</sup> See *infra* Parts VII-VIII.

<sup>106</sup> Rubinfeld Report ¶135.

<sup>107</sup> Elhauge Merits Report Part III.

<sup>108</sup> Elhauge Merits Report Part III.A-B (PBGs); III.C (4P systems).



100. In Part V of his report, Professor Rubinfeld claims that Sanofi never imposed bundling conditions at the “purchaser level” and never enforced the Menactra bundled loyalty condition. His claims contradict Sanofi’s contemporaneous business documents and data showing that it: (1) purposefully made purchasers’ Sanofi Pediatric prices conditioned on loyalty to Menactra, (2) engaged in significant efforts monitoring compliance with individual purchasers’ Menactra loyalty commitments, (3) engaged in significant efforts to enforce the compliance with the Bundle, including by causing explicit and implicit threats to be made to customers, when customers violated the Menactra loyalty commitments embedded in their contracts, and (4) made noncompliant customers pay higher prices for Sanofi Pediatric vaccines when customers refused to comply with the Bundle. The world Rubinfeld describes in Part V his report, where restrained PBG and 4P system customers are free to buy Menveo without any consequence, simply has never existed.

101. Indeed, elsewhere in his report Professor Rubinfeld acknowledges that Sanofi *does* bundle. For example, he concludes (incorrectly) that Sanofi’s bundling of multiple vaccines supports his argument that there is a single market for all ACIP-recommended vaccines. Therefore, in discussing market definition he argues that customers considering buying Menactra must consider not only its price but the price of the rest of the Sanofi Bundle compared to rival prices for the bundled products, which necessarily presupposes that Sanofi imposes a bundle.<sup>109</sup> Otherwise, a customer’s decision about which MCV4 vaccine to purchase would have no impact on the price of the other Sanofi vaccines the customer considers purchasing. Likewise, he argues in his market definition section that many physicians are members of PBGs or health systems with bundled contracts that limit them to a subset of vaccine makers like Sanofi.<sup>110</sup>

#### ***A. Buying Groups (PBGs and GPO Performance)***

102. A large portion of restrained customers purchased under Sanofi “buying group” agreements (PBG and GPO performance agreements) that required customers to commit to Menactra loyalty in order to avoid paying penalty prices on

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<sup>109</sup> Rubinfeld Report ¶¶108-110.

<sup>110</sup> Rubinfeld Report ¶111.

Sanofi's Pediatric vaccines.<sup>111</sup> Professor Rubinfeld's assertion that individual buying group members' prices were not bundled is false, as I show below.

*1. Sanofi Imposed Bundling Requirements on PBG Members*

103. Professor Rubinfeld asserts that Sanofi did not impose bundling requirements on PBG members because "Sanofi's PBG contracts are with buying groups, not with individual physician practices."<sup>112</sup> But whether Sanofi has direct contractual agreements with PBG members is economically irrelevant. The evidence shows that, as an economic matter, Sanofi's contracts and conduct caused PBG members to face bundled penalties on Sanofi's pediatric vaccines if they did not commit to Menactra loyalty and comply with that commitment:

- (a) Sanofi documents show that it purposefully designed its PBG agreements to make PBG members' Sanofi Pediatric prices contingent on maintaining a commitment to Menactra loyalty.
- (b) Sanofi's PBG contracts incentivize the PBGs to keep their members loyal to Menactra. Thus, Sanofi is functionally paying PBGs to help impose bundling conditions on the PBG members.
- (c) Sanofi documents and data show that, because Sanofi paid the PBGs to enforce compliance with the Menactra loyalty conditions, PBGs required their members to commit to Menactra loyalty.
- (d) Sanofi documents and data show that, because Sanofi paid the PBGs to enforce compliance with the Menactra loyalty conditions, PBGs monitored customers' compliance with their Menactra commitments, warned noncompliant customers that they would be kicked off the PBG contract if they remained noncompliant, and did in fact terminate members who refused to become compliant again.
- (e) Sanofi documents show that Sanofi employees expended significant efforts monitoring individual PBG members' Menactra loyalty commitments, worked with PBGs on PBGs' messaging to members regarding Menactra loyalty commitments and the implications of failing to satisfy them (i.e., that members would lose access to favorable prices), and told PBGs when particular members were not complying.
- (f) Novartis documents show that Novartis acknowledged that Sanofi PBG members faced bundled penalties for buying Menveo.

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<sup>111</sup> Elhauge Merits Report Part III.A-B.

<sup>112</sup> Rubinfeld Report ¶147.

104. **a. Sanofi Purposefully Designed its PBG Agreements to Make PBG Members' Sanofi Pediatric Prices Contingent on Maintaining a Commitment to Menactra Loyalty.** Professor Rubinfeld ignores the internal Sanofi documents showing that Sanofi purposefully designed its PBG contract scheme to make PBG members' Pediatric prices contingent on Menactra loyalty. For example, one internal Sanofi document explains that PBG contract prices are "subject to performance requirements of these core vaccines [such as Menactra] by each physician office (member)."<sup>113</sup> This same internal Sanofi document likewise stated that Sanofi would not allow PBG/GPO Performance members to obtain PBG/GPO Performance contract prices if they did not "commit to purchase all 3 sanofi pasteur key product categories" ("Pediatrics," "Adacel," and, "Menactra").<sup>114</sup> A 2009 internal Sanofi presentation discussing its new contracts (being rolled out in anticipation of Menveo's entry) similarly explains under a slide titled "Performance Requirements for PBG Customers" that "If you and your members commit to purchase all 3 sanofi pasteur key product franchises [Pediatrics, Adacel, Menactra] you will receive our best A1 contract pricing for pediatric, Menactra, and Adacel vaccines."<sup>115</sup>

105. **b. Sanofi's Contracts Paid PBGs to Enforce Member Loyalty to Menactra.** As I explained in my opening merits report, Sanofi's contracts paid PBGs to enforce member loyalty on Menactra.<sup>116</sup> If a PBG did not satisfy the Menactra loyalty condition, it would lose 100% of its administrative fees on all three of Sanofi's Pediatric vaccines.<sup>117</sup> The potential loss of these administrative fees "is an especially large threat because virtually all the revenue of buying groups comes from administrative fees; members do not pay buying groups any fees."<sup>118</sup>

106. Statements by Sanofi employees confirm that Sanofi purposefully designed its contracts to incentivize PBGs to enforce loyalty requirements, and that Sanofi told PBGs that their administrative fees were in jeopardy if they did not enforce compliance. For example, an internal Sanofi document describing Sanofi's plan for the Bundle as applied to PBGs explains that "contract owners [i.e,

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<sup>113</sup> Elhauge Merits Report ¶105, quoting SP 00945373 at SP 00945387.

<sup>114</sup> Elhauge Merits Report ¶105, quoting SP 00945373 at SP 00945389.

<sup>115</sup> SP 00515818 at SP 00515856 (slide titled "Performance Requirements for PBG Customers").

<sup>116</sup> Elhauge Merits Report ¶95.

<sup>117</sup> Elhauge Merits Report ¶95.

<sup>118</sup> Elhauge Merits Report ¶95.

PBGs] [will] monitor compliance regularly to ensure annual performance requirements are met. Those members who are underperforming will be notified by the contract owner and if noncompliance continues, will be removed to ensure the success of the entire membership.”<sup>119</sup> As another example, Sanofi told the PBG Pediatric Federation (the third-biggest Sanofi PBG<sup>120</sup>) that [REDACTED]

[REDACTED]<sup>121</sup> Similarly, in a 2010 internal update on discussions with the Cook Children’s Physicians Network PBG, the Sanofi representative noted that the PBG “CCPN [Cook Children’s] is fully aware of the rebate dollars at risk (over \$940K paid in calendar year 2009) if a Novartis agreement is signed” and that “I don’t sense that CCPN is contemplating the forfeiture of their full line agreement w/us to accommodate a Novartis deal.”<sup>122</sup> In this way, Sanofi assured that its PBGs understood the financial risk they would be taking by not strictly enforcing Menactra compliance.

107. Professor Rubinfeld asserts incorrectly that PBGs did not actually have incentives to monitor or enforce compliance with their members Menactra loyalty commitments.<sup>123</sup> I show the errors in his analysis below in section 5. Ultimately, the evidence shows that PBGs did actually monitor and enforce compliance with their bundled Menactra loyalty commitments, which directly disproves Professor Rubinfeld’s claims that the PBGs did not have an incentive to do so.

**108. c. Because Sanofi’s Contracts Paid PBGs to Enforce Menactra Loyalty, PBGs Always Required Members to Commit to Menactra Loyalty.**

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<sup>119</sup> SP 00945373 at SP 00945387.

<sup>120</sup> “MRebut20 PBG list biggest to smallest.xlsx”.

<sup>121</sup> Elhauge Merits Report ¶95, [REDACTED]

<sup>122</sup> See SP 00683825 (2010 Sanofi update of discussions with the Cook Children’s Physician Network PBG, relating that “CCPN is fully aware of the rebate dollars at risk (over \$940K paid in calendar year 2009) if a Novartis agreement is signed & it is understood. It is my feeling at this point that we are NOT in an adversarial position w/CCPN at this time & it is not their choice to abandon the 14+-year relationship w/SP” and that “As previously stated, I don’t sense that CCPN is contemplating the forfeiture of their full line agreement w/us to accommodate a Novartis deal.”). Sanofi’s data shows that Cook Children’s Physicians Network purchased about \$5 million of Menactra in 2009. “MRebut130 cook children sanofi dollars by product 2009.csv”. A 5.5% administrative fee on those Menactra purchases would be only \$270k, so Sanofi’s reference to a \$940k rebate/administrative fee must be referring to admin fees paid on many other Sanofi products besides Menactra.

<sup>123</sup> Rubinfeld Report Part V.A.5.a.

The evidence indicates that PBGs always required their members to commit to Menactra loyalty. Indeed, Professor Rubinfeld does not actually dispute that all PBG and GPO performance member agreements required members to commit to purchasing 80-100% of MCV4 from Sanofi. In my opening merits report, I cited not only examples of PBG commitment agreements establishing this point, but also internal Sanofi documents stating that the PBG membership agreements required commitments to Menactra.<sup>124</sup> Nonetheless, Professor Rubinfeld claims that I have not sufficiently established this point because I did not cite every single PBG member commitment agreement.<sup>125</sup>

109. To further establish the point that Sanofi PBG and GPO Performance member agreements always required members to commit to Menactra, I instructed my staff to search for PBG member agreements (or documents indicating their terms) for every Sanofi PBG that constituted more than 1% of Menactra sales to PBGs. There were 23 such PBGs, which in total constitute 83% of Menactra sales made under PBG agreements.<sup>126</sup> Despite the fact that there is not complete discovery on PBG member agreements, my staff was able to locate PBG member contracts for 21 PBGs (constituting 81% of total Menactra PBG sales) and found that each and every one of those agreements included commitments to purchase Menactra.<sup>127</sup> Among these 21 PBGs, my staff was also able to find exactly what the Menactra commitment required for 18 of them, and among these: 75% required members to commit to purchasing 100% of their MCV4 from Sanofi; 20% required members to commit to purchasing at least 90% of their MCV4 from Sanofi; and 5% required members to commit to ensuring that their Menactra purchases in the current year exceeded 80% of their total MCV4 purchases in the prior year.<sup>128</sup> In short, this sample indicates that Sanofi PBGs consistently required their members to commit to purchasing Menactra. I have not been able to find a single Sanofi PBG that did not require a bundled Menactra commitment.

**110. d. Because Sanofi Paid PBGs to Enforce Compliance, PBGs Monitored Member Compliance, Convinced Noncompliant Members to**

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<sup>124</sup> Elhauge Merits Report ¶106, citing, among others, SP 01293489 at SP 01293530 (early 2009 Sanofi document describing its PBG contracts as “If you and your members commit to purchase all 3 sanofi Pasteur key product franchises you will receive our best A1 contract pricing for pediatric, Menactra, and Adacel vaccines.”)

<sup>125</sup> Rubinfeld Report ¶150.

<sup>126</sup> “MRebut20 PBG list biggest to smallest (commitment info filled).xlsx”.

<sup>127</sup> “MRebut20 pbgs with mcv4 commitments.csv”.

<sup>128</sup> “MRebut20 PBG exact mct commitment requirements.csv.”

**Return to Compliance, and Terminated Noncompliant Members who Refused to Return to Compliance.** Professor Rubinfeld asserts that Sanofi PBGs do not have incentives to monitor and enforce their members' bundled commitments to Menactra loyalty, and that Sanofi PBGs do not generally monitor and enforce their members' commitments.<sup>129</sup> Professor Rubinfeld's assertion contradicts (and ignores) the Sanofi documents and data showing that: (i) PBGs routinely monitored members' compliance with their commitments, (ii) when members were not compliant, PBGs sought, and frequently obtained, compliance by threatening termination, and (iii) when members refused to comply, PBGs terminated them, consequently requiring them to pay disloyal prices for Sanofi's Pediatric vaccines.

111. (i) PBGs Monitored Compliance. The evidence indicates that all PBGs monitored whether their members were compliant with their individual commitments. Thirteen of Sanofi's biggest PBGs, representing 61% of Menactra sales to PBGs, responded to Sanofi's questionnaire about whether they monitored members' compliance, and all thirteen said they did.<sup>130</sup>

112. (ii) PBGs Would First Threaten Termination to Convince Noncompliant Members to Comply. Sanofi's PBG questionnaires also show that PBGs would, with the help of Sanofi, first threaten noncompliant members with termination to convince them to become compliant. For example, Cook Children's Health Care System ("CCHS")<sup>131</sup> stated that while they "have often terminated members due to non-compliance," when a noncompliant member is first identified, they "send a warning letter," and if there is "[n]o response" it "generates a phone call," and that "several 'chances'" are given "to modify behavior."<sup>132</sup> CCPA Purchasing Partners similarly explained that if noncompliance is detected, "Someone in CCPA contacts the practice and informs them of their break in compliance" and that this "[s]erves as [a] warning" and that "[i]f they do it again,

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<sup>129</sup> Rubinfeld Report Part V.A.5.a.

<sup>130</sup> "MRebut20 PBG monitoring according to questionnaire.csv".

<sup>131</sup> CCHS created the PEDSPAL program. See PEDSPAL website (stating that PEDSPAL was "created in 2004 by physicians at Cook Children's Health Care System"), available at: <http://www.pedspal.org/about/Pages/default.aspx>.

<sup>132</sup> CCHS 00604 (CCHS Contract Owner Questionnaire) at CCHS 00605 (responding to the questions "Have you ever terminated a member from your contract?" and "What is your process for termination?").



they would be/will be terminated.”<sup>133</sup> Likewise, Children’s Healthcare of Orange County explained that it will “call [a noncompliant member] and try to help them get back on track,” and then “give them 30 days to comply, and then terminate if they don’t comply.”<sup>134</sup> Other PBGs similarly responded that they would threaten noncompliant members with termination.<sup>135</sup>

113. Sanofi PBGs also often sent letters to all of their members emphasizing that those who bought Menveo were noncompliant and would be terminated. For example, less than a month after Menveo entered the market, the third-largest Sanofi PBG (Pediatric Federation) sent a letter to its members explaining that “100% compliance is required by Pediatric Federation for all [Sanofi] vaccines provided” and warned that “non-compliant members are given the opportunity to make appropriate corrections or resign from the contract. There are no exceptions to the purchase requirements. Novartis has apparently been telling offices they are allowed to purchase some of their new meningococcal vaccine (Menveo), and they will still be compliant under the Pediatric Federation contract. This is not true.”<sup>136</sup> Similarly, a May 2010 letter from Physicians Resource Network (“PRN”) to its members warned that “Where you choose to purchase your meningococcal vaccine is tracked and will determine your eligibility to retain the discounts on the total line of vaccines offered to us by Sanofi.”<sup>137</sup>

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<sup>133</sup> SP 00378577 (CCPA Purchasing Partners Contract Owner Questionnaire) at SP 00378578 (responding to the questions “Have you ever terminated a member from your contract?” and “What is your process for termination?”).

<sup>134</sup> SP 02038006 (Children’s Healthcare of Orange County Contract Owner Questionnaire) at SP 02038007 (responding to the questions “Have you ever terminated a member from your contract?” and “What is your process for termination?”).

<sup>135</sup> See, e.g., SP 02052236 (Children’s Practicing Pediatricians (“CPP”) Contract Owner Questionnaire) at SP 02052237 (stating that it responds to noncompliant members by sending a “[w]ritten notification with [a] timeframe to provide [an] opportunity to [respond] and possibly not be terminated”); SP 00435385 (River Valley Pediatricians Contract Owner Questionnaire) at SP 00435386 (stating that prior to termination, River Valley “calls first to talk with the member at the physician office”); SP 01988929 (Pediatric Federation Contract Owner Questionnaire) at SP 01988930 (Pediatric Federation “[g]ives [non-compliant] office a call to discuss the issue” and “allows 1-2 months to become compliant,” then “if [compliance is] still an issue, provides a written warning and allows office 1-2 months to become compliant” and if they do not, “terminate [the member] from the contract for one year.”); SP 02052269 (National Discount Vaccines Alliance (“NDVA”) Contract Owner Questionnaire) at SP 02052270 (if a customer is noncompliant, they “[c]all customer to warn them on 3 different occasions” and the “3rd time they [are] removed”).

<sup>136</sup> PF0014324.

<sup>137</sup> SP 01667170 (5/4/10 PRN letter to members).

Also in 2010, the Southern California Children's Health Care Network ("SCCHN") sent a letter to members stating that "utilizing these Sanofi products [including Menactra] is necessary to keep your office's compliance up and to continue honoring your commitments to Sanofi Pasteur," and warning that "Failure to utilize these products, with a drop in your office's compliance may result in your removal from the Sanofi Pasteur portion of the SCHN contract."<sup>138</sup> Similarly, in March 2011, CASA Physicians Alliance sent a letter to its members that included Menactra among "those products that must be purchased from sanofi pasteur," and warned that "non-compliant members will be terminated unless future compliance can be verified."<sup>139</sup> These communications assured that PBG members were aware that buying Menveo could lead to termination from their PBG and subsequent penalty pricing on their Sanofi pediatric vaccine purchases.

114. Sanofi PBGs also sent individual letters to noncompliant members, threatening to terminate them if they did not return to compliance. For example, the third-largest Sanofi PBG, Pediatric Federation, has a form "Compliance Notice" letter that it sends to customers who are noncompliant. For customers who have purchased Menveo, it states "Your office has recently purchased the following competing product: MENVEO. To remain compliant with our manufacturer contracts, please switch your purchases to: MENACTRA."<sup>140</sup> The letter then states explicitly that "if your office elects to continue purchasing Menveo, you will need to withdraw from our Sanofi contract," and then gives the members two options: (a) "We will resume purchasing Menactra. Please keep us on the Pediatric contract with Sanofi Pasteur" or (b) "We would like to resign from the Sanofi contract . . . I understand Sanofi vaccines will now move to List price."<sup>141</sup> There are at least thirty examples of Pediatric Federation sending these compliance letters and members responding to the threat of termination by affirming that they would "resume purchasing Menactra."<sup>142</sup>

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<sup>138</sup> SP 00110172 (2010 SCCHN letter to members).

<sup>139</sup> SP 01758614 (3/27/11 CASA Physicians Alliance letter to members).

<sup>140</sup> PF0037740 (example Pediatric Federation compliance letter).

<sup>141</sup> *Id.*

<sup>142</sup> PF0037744 (Raymond Li, MD); PF0037756 (Albert Shen, MD); PF0037760 (Lydia Sanchez, MD); PF0037764 (Peter Statti, MD); PF0037768 (Ped. Specialists Med. Group); PF0037770 (Lelanie Luna, MD); PF0037779 (Erlinda Reyes, MD); PF0037783 (Sierra Care Physicians); PF0037785 (Sullivan & Corp. MDs); PF0037787 (AZ Pediatric Care); PF0037790 (Jeaniene Talley, MD); PF0037792 (Sapphire Pediatrics); PF0037798 (Walnut Creek Pediatrics); PF0037810 (Yolanda Grady, MD); PF0037812 (Vinh Nguyen, MD); PF0037816 (Centennial Pediatrics); PF0037821 (Pacific Coast Pediatric Center); PF0037823 (Jenny Saw, MD);

115. Convincing noncompliant members to comply with the Bundle by threatening termination is actually a *more* effective way of restraining Menveo sales than immediately terminating noncompliant members. Terminating a member for switching to Menveo could deter other members from being noncompliant, but convincing a noncompliant member to switch back to Menactra immediately stops noncompliant members' Menveo purchases.

116. Internal Sanofi documents show that it planned for PBGs to follow this protocol of first threatening termination to convince members to become compliant again.<sup>143</sup> This illustrates the flaw in Professor Rubinfeld's claim that terminating a PBG member that buys Menveo is the only way to restrain customers from buying Menveo. Sanofi expected PBGs to instead first try to convince noncompliant members to comply with the Bundle by switching back to Menactra, and these documents show that PBGs regularly succeeded in doing so.

117. (iii) PBGs Terminated Noncompliant Members. Professor Rubinfeld argues that there is no evidence of Sanofi and/or PBGs terminating members because they switched to Menveo.<sup>144</sup> Professor Rubinfeld is just ignoring the documents and data showing that, when noncompliant members refused to return

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PF0037834 (Mandakini Patel, MD); PF0037836 (Vista Complete Care); PF0037839 (Kelly Wong, MD); PF0037847 (Richard Jones, MD); PF0037876 (Woodinville Pediatrics); PF0037878 (Elisa Brown, MD); PF0037893 (Partners in Pediatrics); PF0037905 (Daniela Gannon, MD); PF0037920 (Gardner Family Health Center); PF0038022 (Tim Roth, D.O.); PF0038105 (Naomi Shieh, MD); PF0043970 (Dilbagh Gehlawat, MD); PF0043984 (Amy Webb, MD); PF0044010 (Kenneth Yau, MD).

<sup>143</sup> SP 00945373 at SP 00945387 ("Those members who are underperforming will be notified by the contract owner and if noncompliance continues, will be removed to ensure the success of the entire membership."); SP 01688135-36 (April 2010 internal Sanofi email chain. It describes an internal Sanofi conference call that explained to Sanofi employees how to detect when customers were not complying with their Sanofi PBG agreements and what to do when they found noncompliant customers. It explains that Sanofi Vaccine Specialists "play a critical role in driving growth and monitoring compliance; however, you are not the compliance police. Discussing compliance with your customers can harm your relationships, these discussions are the responsibility of the contract owners. Keep Nicole [a higher level Sanofi employee] informed about compliance issues so she can alert PediaFed [a PBG]. Kathy at PediaFed will approach the customer and try to preserve the business; she will give them the benefit of the doubt and try to help them see the error of their ways.").

<sup>144</sup> Rubinfeld Report ¶172.

to compliance, PBGs and Sanofi worked to terminate them, causing them to pay 37-47% higher contract prices on Sanofi's Pediatric vaccines.

118. The documentary record in this case is replete with examples showing that PBGs had a widespread practicing of terminating members that refused to maintain the commitments in their PBG agreements. I instructed my staff to search for evidence indicating whether each PBG had terminated members for noncompliance, for every Sanofi PBG that constituted more than 1% of Menactra sales to PBGs. There were 23 such PBGs, which in total constitute 83% of Menactra sales to PBGs.<sup>145</sup> Of these 23 Sanofi PBGs, I found evidence indicating that 21 of them had terminated members for noncompliance.<sup>146</sup> Of the other two PBGs for which I could not find evidence that they had terminated a member for noncompliance: (1) Richmond IPA asserted in its contract questionnaire that they never needed to terminate members because they could always convince noncompliant members to become compliant again,<sup>147</sup> and Sanofi data confirms that Richmond IPA members bought 97% of their MCV4 from Sanofi;<sup>148</sup> and (2) Kids Health First members bought 98% of their MCV4 from Sanofi,<sup>149</sup> indicating their compliance was also so high they didn't need to terminate any of their members. In sum, this analysis indicates that PBGs had a widespread practice of terminating members for noncompliance when necessary. This evidence directly contradicts Professor Rubinfeld's claim that PBG members are free to violate their bundled commitment agreements without any consequences.

119. There are also numerous concrete examples in the record of PBGs terminating members for noncompliance. For example, data and Sanofi documents show that Sanofi got a PBG member, Dr. Boroumand, kicked off his PBG contract for buying Menveo. Sanofi's data shows that, when Menveo entered the market in March 2010, Dr. Boroumand was a member of the PBG Main Street Vaccines and at the time was purchasing both Menactra and Sanofi Pediatric vaccines, such as

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<sup>145</sup> "MRebut20 PBG list biggest to smallest (commitment info filled).xlsx".

<sup>146</sup> "MRebut20 PBG confirmed terminations.csv".

<sup>147</sup> SP 00488699 at SP 00488701 ("We have never terminated a member, with appropriate counseling and using our value proposition calculator, they all understand, return to the fold, and often become even better members."); SP 00488698 (email including SP 00488699 as an attachment, confirming that SP 00488699 was filled by Richmond IPA).

<sup>148</sup> "MRebut84 mct share at richmond khf.csv". Statistic calculated from July 2010 (beginning of Menactra data in IMS DDD dataset) to August 2013 (end of IMS DDD data).

<sup>149</sup> MRebut84 mct share at richmond khf.csv

Daptacel, IPOL, and Pentacel.<sup>150</sup> IMS data shows that Dr. Boroumand started also purchasing Menveo in April of 2010, and did so again in July and October of 2010.<sup>151</sup> Consequently, in March 2011, Sanofi had Dr. Boroumand removed from the Main Street Vaccines contract because he was “using Menveo.”<sup>152</sup> Sanofi’s transactional data shows that Dr. Boroumand continued to purchase Sanofi Pediatric vaccines after he was removed from the Main Street contract, and thus paid penalty prices for these Sanofi Pediatric vaccines.<sup>153</sup> For example, the data shows that he ordered ActHIB, IPOL, and Pentacel on July 18, 2011 at disloyal prices, which at the time were 37-47% higher than Main Street Vaccine contract prices.<sup>154</sup>

120. As another example, internal Sanofi documents show that a member of the Main Street Vaccines PBG named Dr. Fisher was buying Menveo instead of Menactra “strictly based on price.”<sup>155</sup> A Sanofi employee had explained to Dr. Fisher that “when you compare Menactra and Menveo financially, menveo will win, but what he needs to do is look at the pricing that he receives on all his other vaccines.”<sup>156</sup> But Dr. Fisher responded that he “is not loyal to anyone and will order from whoever he wants,” which prompted Main Street Vaccines to then ask Sanofi to remove Dr. Fisher from the Main Street Agreement, and Sanofi did so.<sup>157</sup>

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<sup>150</sup> “CRebut[2222] Boroumand 70186166 Ordering History.xls,” “SanofiData” tab.

<sup>151</sup> See “CRebut[2222] Boroumand 70186166 Ordering History.xls,” on the “IMSData” tab. Dr. Boroumand also purchased Menveo in 2012 and 2013. *Id.*

<sup>152</sup> SP 01388882 (3/18/11 email from Michael Breen of Sanofi with the subject line “FW: FW: Non compliant account,” saying “Please remove this customer from the MS contract. Dr. Boroumand Acct #70186166.”); *id.* at SP 01388884 (2/16/11 email from Nicole Thompson of Sanofi to Kate at Main Street Vaccines, stating that “We spoke a while ago about Dr Boroumand Acct #70186166 about not being loyal to the contract. I was in his office 2 days ago and found that he is using Menveo due to the price being in the [REDACTED] range. I tried to explain the value of the whole portfolio saving to him and he said in a small practice every dollar counts, he realizes he is jeopardizing his contract status. I am letting you know this and you can inform him that he will be removed if this is his choice.”).

<sup>153</sup> See “CRebut[2222] Boroumand 70186166 Ordering History.xls,” on the “SanofiData” tab.

<sup>154</sup> See “CRebut[2222] Boroumand 70186166 Ordering History.xls,” on the “SanofiData” tab and “CRebut[2225] Main Street Prices.xlsx.”

<sup>155</sup> SP 01388862-63.

<sup>156</sup> *Id.*

<sup>157</sup> *Id.*



121. As another example, internal Sanofi documents show that Sanofi worked closely with the PBG Main Street Vaccines to identify noncompliant members by maintaining daily contact with the PBG and engaging in a “monthly membership review.”<sup>158</sup> When Sanofi and Main Street Vaccines identified 43 members who “were non-compliant (mostly from Menveo/Boostrix use)”, Main Street Vaccines then “called and sent letters and ultimately removed 31 members.”<sup>159</sup>

122. The documents also provide examples of PBG Children’s National Health Network (CNHN) terminating members for noncompliance. For example, in October 2011, CNHN sent a customer named “Anez & Bitar” a letter terminating them from the PBG agreement “based on information provided to CNHN by Sanofi Pasteur.”<sup>160</sup> This letter explained that “for our member practices to receive advantageous CNHN group pricing under this contract, all practices must order the following Sanofi vaccines: DTaP, IPOL, HIB, Pentacel, Adacel & Menactra.”<sup>161</sup> Sanofi’s transaction data confirms that Anez & Bitar stopped buying Menactra in May 2010 (only three months after Menveo entered), was terminated from the CNHN PBG agreement in October 2011, and had to pay penalty prices for its Sanofi Pediatric vaccines thereafter.<sup>162</sup> Similarly, a Sanofi document shows that CNHN emailed Sanofi in November 2011 asking it to “terminate” a member named “Liberty Pediatrics” “for non-compliance.”<sup>163</sup> Sanofi data confirms that Liberty Pediatrics had stopped purchasing Menactra in July 2010, was terminated from its PBG agreement in November 2011, and thereafter repeatedly had to pay penalty prices for Sanofi’s Pediatric vaccines.<sup>164</sup>

123. As another example, the PBG Pediatric Federation terminated a customer named Modesto Pediatrics for refusing to switch back from Menveo to Menactra after being threatened with termination for noncompliance. In June 2012, Pediatric Federation sent a compliance notice to Modesto Pediatrics warning them that “if your office elects to continue purchasing Menveo, you will need to

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<sup>158</sup> SP 00040533 at SP 00040543.

<sup>159</sup> SP 00040533 at SP 00040543.

<sup>160</sup> SP 01155978.

<sup>161</sup> *Id.*

<sup>162</sup> “MRebut4004 Anez Bitar Sanofi Purchase History.csv”. Anez & Bitar purchased Pentacel and IPOL at penalty levels (under Sanofi’s no-contract program) after it was terminated.

<sup>163</sup> SP 01352930.

<sup>164</sup> “MRebut4004 Liberty Pediatrics Sanofi Purchase History.csv”.



withdraw from our Sanofi contract.”<sup>165</sup> Modesto Pediatrics responded by marking an “x” next to the option “We would like to resign from the Sanofi contract. . . I understand Sanofi vaccines will now move to List Price.”<sup>166</sup> Sanofi’s data confirms that Modesto Pediatrics paid penalty prices on Sanofi’s Pediatric vaccines from September 2012 onward.<sup>167</sup>

124. The evidence also provides several examples of the PBG Atlantic Health Partners (“AHP”) terminating members for noncompliance. For example, a December 2010 email from AHP to Sanofi asked that Sanofi “terminate 3 locations . . . for noncompliance . . . [1] Greenville Pediatrics . . . [2] Farmville Pediatrics . . . [3] Winterville Pediatrics.”<sup>168</sup> Sanofi’s data confirms that all three customers had stopped buying Menactra after Menveo entered,<sup>169</sup> and that all three were terminated from the AHP agreement.<sup>170</sup> Sanofi’s data also shows that Greenville Pediatrics and Winterville Pediatrics both paid penalty prices for Sanofi’s Pediatric vaccines under Sanofi’s non-contract program after being terminated from their PBG agreement, while Farmville Pediatrics completely stopped purchasing from Sanofi after it was terminated.<sup>171</sup> This evidence directly contradicts Professor Rubinfeld’s claim that Atlantic Health Partners never terminated members for noncompliance.<sup>172</sup>

125. As another example, PBG Physicians’ Alliance of America (“PAA”) emailed Sanofi in March 2012 requesting that Sanofi “Please unlink Schaefferstown Family Practice, account number 70054251, from our account for non compliance. They have received two letters from us re noncompliance, both without response.”<sup>173</sup> Sanofi’s data confirms that this customer stopped buying Menactra in April 2011, was terminated from its PBG agreement in March 2012,

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<sup>165</sup> PF0037754.

<sup>166</sup> PF0037754.

<sup>167</sup> “MRebut75 Modesto Pediatrics.csv”

<sup>168</sup> SP 01352043.

<sup>169</sup> Greenville Pediatrics stopped buying Menactra in June 2010. Farmville Pediatrics stopped buying Menactra in June 2010. Winterville Pediatrics stopped buying Menactra in August 2010. “MRebut4004 SP 01352043 custs.csv”.

<sup>170</sup> “MRebut4004 SP 01352043 custs.csv”.

<sup>171</sup> “MRebut4004 SP 01352043 custs.csv”.

<sup>172</sup> Rubinfeld Report ¶147.

<sup>173</sup> SP 01148708.

and thereafter repeatedly paid penalty prices for Sanofi's Pediatric vaccines under Sanofi's non-contract program.<sup>174</sup>

126. These examples represent only a fraction of the many times Sanofi PBGs terminated members. More generally, Sanofi's transaction data shows that there are at least 269 customers who, before Menveo entry, bought Menactra and were members of Sanofi PBGs, but at some point after Menveo entry began purchasing Sanofi Pediatric vaccines at penalty prices under one of Sanofi's disloyal programs (GPO Access or Non-Contract).<sup>175</sup> Since Menveo entry, 86% of Menactra doses have been sold to PBGs that have had former members pay penalty prices for Sanofi Pediatric vaccines.<sup>176</sup> Among the remaining 14% of PBGs (weighted by Menactra doses) that have not had former members pay penalty prices on Sanofi Pediatric vaccines, Menactra had a 91.5% share,<sup>177</sup> indicating that these PBGs were able to prevent their members from buying a significant share of Menveo without having to terminate them. This finding makes sense given the evidence discussed above that Sanofi and its PBGs preferred to first threaten noncompliant customers in an attempt to make them compliant, and that they often succeeded in doing so.

127. **e. Sanofi Employees Systematically Monitored Individual PBG Members' Compliance and Informed PBGs When Individual Members were Noncompliant.** Professor Rubinfeld's claim that Sanofi did not impose bundling requirements on PBG members ignores that Sanofi not only actively encouraged its PBGs to make sure their members were loyal to Menactra,<sup>178</sup> but also helped

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<sup>174</sup> "MRebut4004 Schaefferstown.csv".

<sup>175</sup> "MRebut4005 PBGs that have punished members.csv". Not all of these customers will have necessarily been punished for noncompliance with PBGs' *Menactra* loyalty requirement (they may have been terminated for violating the Pediatric or Tdap loyalty requirements), but termination for any type of noncompliance refutes Professor Rubinfeld's claim that the PBGs have no incentive to terminate for noncompliance and did not ever terminate for noncompliance. Rubinfeld Report ¶170. Sanofi's data does not directly indicate the reason why any given PBG member was terminated from its PBG contract.

<sup>176</sup> "MRebut4005 % mct pbg doses by pbgs that have punished.csv".

<sup>177</sup> "MRebut4005 mct share among pbgs that never punished.csv".

<sup>178</sup> Elhauge Merits Report ¶105, citing AHP0002170 (Sanofi employee telling the PBG Atlantic Health Partners to tell its members that its contracts do "not provide 'wiggle room' for the use of competing vaccines."); AHP0002074 (March 15, 2010 e-mail from Sanofi employee to AHP employee stating that Sanofi planned to tell all AHP members that "AHP is a compliance contract that requires FULL USE OF THE SANOFI CORE PRODUCT LINE. . . . To further clarify, AHP accounts ARE NOT permitted to purchase Boostrix or Menveo in small amounts to

enforce the individual PBG member commitments to Menactra loyalty by monitoring customer compliance and informing PBGs when their members were noncompliant.<sup>179</sup> Sanofi bought data from IMS that showed each customer's purchases of Menveo, and Sanofi account managers started warning PBG/GPOs when the data showed that some of their members started switching to Menveo.<sup>180</sup> Sanofi sales personnel also *directly* communicated with members to enforce compliance by discussing contract requirements and the penalty prices the members would pay if they were removed from the contract.<sup>181</sup>

128. In fact, Sanofi's PBGs' responses to the same "Contract Owner Questionnaire" referenced above suggest that Sanofi not only assisted in monitoring PBG member compliance and detecting non-compliance, but often took the lead in doing so. Sanofi specifically asked a number of its largest PBGs "How do you currently monitor member performance under your current agreement?" The PBG Pediatric Federation answered that it "Review[s] compliance report quarterly and collect[s] feedback regarding member performance from VS [Sanofi Vaccine Specialist] intelligence."<sup>182</sup> The PBG Children's Health Network ("CHN") similarly stated that "Sanofi supplies CHN

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assist them in meeting other manufacturers purchasing requirements."); PF0067824 (email from Sanofi to the PBG Pediatric federation stating that Sanofi found several Pediatric Federation members "that have decided to utilize Menveo and were not aware of their PediFed contract required compliance to Menactra as well."); SP 00449347 (March 24, 2011 internal Sanofi e-mail telling Sanofi employees in contact with PBGs to tell the PBGs that "To eliminate any confusion or misrepresentation of the (Insert Contract Name here) agreement, all doses of MCV4 that you use must be Menactra vaccine in order to stay compliant. Please continue to only use Menactra vaccine for all your MCV4 vaccination needs."); PF0038686 (March 15, 2011 e-mail from a Sanofi representative to the PBG PediaFed asking PediaFed to remind its members "about 100% compliance to Menactra." The Sanofi representative also asked PediaFed to tell its members that "Pedia-Fed's customers are to be 100% compliant with Menactra and DO NOT have a 20% margin of variance to possibly order Menveo.").

<sup>179</sup> Elhauge Merits Report ¶105, citing SP 00945373 at SP 00945390 (Sanofi's "Contract Compliance" process for PBGs, which included monthly compliance reports and visits to PBGs "to discuss noncompliant members"); Elhauge Merits Report ¶112, citing Sawyer Deposition at 84; Dillingham Deposition at 165; *id.* at 187.

<sup>180</sup> Elhauge Merits Report ¶112, citing SP 00462511 at SP 00462520; AHP0002169; AHP0002185 at AHP0002187; PF008508; SP 00007456; PF0093203; PF0093205.

<sup>181</sup> Elhauge Merits Report ¶112, citing PAA00017342; AHP0002169; SP 00001282; PF0080095; SP 00945373 at SP 00945389; SP 00002171 at SP 00002172.

<sup>182</sup> SP 01988929 (Pediatric Federation "Contract Owner Questionnaire" responses) at SP 01988930. SP 01988928 is a 2/16/11 email confirming that the following document is the Pediatric Federation questionnaire.

with regular ratio achievement reports and benchmark measurements” and that “the VMSs [Sanofi Vaccine Specialists] keep tabs of what’s going on in the member refrigerators and inform RAM [Sanofi Regional Account Manager] of potential defectors so RAM can work with CHN to influence decisions.”<sup>183</sup> Likewise, the PBG Children’s Healthcare of Orange County explains that it “monitor[s] the performance reports” and their “RAM [Sanofi Regional Account Manager] will highlight those that are non-compliant.”<sup>184</sup> Other PBGs responded similarly.<sup>185</sup> In this same questionnaire, Sanofi also asked its PBGs “How can we help owner’s [sic] better drive contract compliance through membership selection and removal?”<sup>186</sup> This suggests Sanofi wanted to become even more intimately involved in “driving contract compliance” by PBG members.

129. Sanofi also regularly told PBGs to remind their members of the need for compliance, and also reminded members directly. For example, Sanofi drafted template emails intended for PBGs to distribute to their membership that specifically stated that “To eliminate any confusion or misrepresentation of the (Insert Contract Name Here) agreement, all doses of MCV4 that you use must be Menactra vaccine in order to stay compliant. Please continue to only use Menactra vaccine for all of your MCV4 vaccination needs.”<sup>187</sup> Sanofi would also take it

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<sup>183</sup> SP 02022214 (CHN “Contract Owner Questionnaire”) at SP 02052215.

<sup>184</sup> SP 02038006 (Children’s Healthcare of Orange County “Contract Owner Questionnaire” responses) at SP 02038007.

<sup>185</sup> See, e.g., SP 01985897 (PCA “Contract Owner Questionnaire”) responses) at SP 01985898 (Primary Care Alliance states that it sends “Emails to RAM [Sanofi Regional Account Manager] in identifying what’s going on at a rep level” and “requests are made [of the rep] to view fridge to determine compliance.”), and SP 01985896 (1/3/11 email confirming that the following document is the PCA questionnaire); SP 00488699 (Richmond IPA “Contract Owner Questionnaire” responses) at SP 00488701 (Richmond IPA uses “Compliance reports we receive from SP” to monitor compliance), and SP 00488698 (10/28/10 email confirming that the following document is the Richmond IPA questionnaire); SP 02052236 Children’s Practicing Pediatricians “Contract Owner Questionnaire” responses) at SP 02052237 (“Through Contract Summary reports and through VS [Sanofi Vaccine Specialist] feedback.”); SP 02052243 (CASA Physicians Alliance “Contract Owner Questionnaire” responses) at SP 02052245 (“Reports from SP [Sanofi] and e-contract” and “Also, have RAM [Sanofi Regional Account Manager] ask the VS [Sanofi Vaccine Specialist] for feedback); SP 02052269 (National Discount Vaccine Alliance (“NDVA”) “Contract Owner Questionnaire” responses) at SP 02052270 (“DDD data helps her monitor compliance with her members”).

<sup>186</sup> See, e.g., SP 02052269 at SP 02052271.

<sup>187</sup> See SP 00449347 (3/24/11 internal Sanofi email to Account Managers, subject “Menactra Competitive Response OM Communication,” telling the Account Managers to “customize the enclosed communication and forward to your contract owners so they can share

upon itself to remind members of the need for compliance to the member's agreement with their PBG. For example, Ashleigh Provost of Primary Pediatrics emailed Bob Chalmers of Physicians Alliance to relate that "I've just spoken with our Sanofi rep. She was saying that under the Physicians' Alliance contract, we must utilize any products they [Sanofi] offer and are unable to use GSK's competing products. Will you please clarify this for me, and if that's the case, our thoughts of possibly using Infanrix, Boostrix, PedVaxHIB (merck), Menveo, are ruled out, correct?"<sup>188</sup> In this way, Sanofi made sure that PBG members were aware that Menveo use threatened their access to non-penalty prices on Sanofi's Pediatric vaccines.

130. Other evidence shows that Sanofi carefully monitored member compliance and notified PBGs of potentially noncompliant members.<sup>189</sup> Sanofi would instruct PBGs to send warning letters or to call PBG members when it detected noncompliance, to "speak with them about 100% compliance to

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why Menactra vaccine is their member's best option for all meningococcal vaccine needs") at SP 00449348-49 (emphasis in original). *See also, e.g.*, PF0077793 (3/2/11 email from Sanofi to Pediatric Federation, forwarding an internal Sanofi email, stating that "As you can see below, the Novartis representative [...] is misrepresenting your contract. They are telling your members that they are allowed to order 20% [Menveo] and still be compliant. [...] Could you please issue a cease and desist to Novartis? In addition, would it be possible to send/post a communication regarding Menactra compliance? If you would like an example of what other contract owners are stating please let me know").

<sup>188</sup> *See* PAA00017342 (3/9/10 email from Ashleigh Provost of Primary Pediatrics to Bob Chalmers of Physicians Alliance).

<sup>189</sup> *See, e.g.*, SP 00457079 (August 2012 Sanofi internal "Account Management/West Customer Insight Report," stating that "Where clinics have shifted to Menveo, our RAMs [Sanofi Regional Account Managers] have been working with the appropriate PBG to expose non-compliance. Positive results have been seen from the recent compliance notices sent to Pediatric Federation members. The availability of the DDD report has proven to be a very valuable tool to help contract owners manager their contracts."); SP 02035439 (5/4/10 internal Sanofi email relating to an email chain discussing the ability of PBGs to remove members from their roster during a certain period and have that member's benchmark correspondingly removed, stating that "This did indeed help the contract owners ensure compliance from their membership. They went through the review exercise with their RAM [Sanofi Regional Account Manager] and removed the non compliant members. This also gave them the opportunity to send warning letters after 4 months and give the member the chance to bring their practice into compliance."); PF0091895 (April 13, 2012 email chain between Sanofi and the PBG Pediatric Federation. Pediatric Federation asks Sanofi which members it should state noncompliance warnings to, and Sanofi responds that it do so for members the Sanofi knows "are using Menveo" based on Sanofi data and Sanofi representatives checking the vaccine-storage refrigerators of these customers).



Menactra.”<sup>190</sup> Sanofi also directly warned PBG members about their noncompliance.<sup>191</sup> For instance, in its Contract Owner Questionnaire Unified Physicians Society stated that while they “Need data to drive compliance,” that “your [Sanofi’s] reps do a good job as well.”<sup>192</sup> In this way, Sanofi made certain that noncompliance was dealt with—ideally by bringing the member back into

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<sup>190</sup> See PF0038686 (3/15/11 email to Pediatric Federation from Sanofi, forwarding an internal Sanofi email about a potentially noncompliant Pediatric Federation member, stating “Kathy, I know we talked about getting a more recent communication the membership regarding compliance. Any idea when that will be available? Could you contact this physician and speak with them about 100% compliance to Menactra?”). See also, e.g., PAA00017910 (5/3/10 internal Sanofi email regarding a potentially non-compliant Physicians Alliance member, stating that “I hope that Bob can send them a notice informing them of the contract agreement,” which a Sanofi employee then forwarded to Bob Chalmers of Physicians Alliance, asking “Would you be so kind to send over a warning letter,” to which Bob Chalmers responded “I’ll get something out ASAP.”); PF0070160 (7/1/10 email from Sanofi to Pediatric Federation, subject “Pedified Compliance Letter Request,” forwarding an internal Sanofi email and saying “Could you please see the email below from the San Francisco rep regarding a compliance letter for Dr. Langston. Could you please send the letter to him and maybe a phone call? I would be willing to pay for FedEx delivery to ensure he receives this time.”); SP 02096169 (6/27/13 internal Sanofi email, asking “Could you have Physician’s Alliance call her [Dr. Rosa Fernandez] as a ‘courtesy call,’ and perhaps say they often run compliance reports and have noticed she hasn’t ordered Menactra since 8/22/2012 and wanted to reiterate the importance of remaining loyal to sanofi pasteur on this contract in order to get discounts across all the vaccines we make? We had to do this last year with some AHP customers and it is very impactful coming from the contract owners versus us and stresses that cherry-picking these contract will not be tolerated.”).

<sup>191</sup> See, e.g., AHP0002169 (11/28/11 email from Sanofi to Atlantic Health Partners, stating “Can you read the updates below from the VS [Sanofi Vaccine Specialist] and let me know if they were reached out to with the DDD or what you’d like as a next step from her.” The Sanofi Vaccine Specialist had stated that “Maple Leaf Family and Sports Med has started using Menveo because of the pay as you go program and there [sic] Menveo rep told them they were able to do that while being on contract. [...] I will go out there and do a business review and review the benefits on contract. I wanted to see if AHP could also send them something about the contract as a reminder?”); SP 01982839 (1/12/10 internal Sanofi email) at SP 01982840 (“This is a great opportunity for you [Sanofi reps] to review the contract compliance terms with your customers [Children’s Healthcare of Orange County members], especially when it comes to ADACEL/Menactra. You may use the enclosed designation form to remind and contract members of the compliance terms, just in case they have forgotten or if there has been turn-over in some of your accounts.”).

<sup>192</sup> See SP 02052265 (Unified Physicians Society (“UPS”) “Contract Owner Questionnaire” responses) at SP 02052267 (in response to the question “How can we help owner’s [sic] better drive contract compliance through membership selection or removal?” stating that they “Need data to drive compliance” but that “your [Sanofi’s] reps do a good job as well.”).



compliance, but by removing the member from the contract if necessary. Indeed, internal Sanofi documents acknowledge that its employees “play a critical role in . . . monitoring compliance.”<sup>193</sup>

131. Sanofi salespeople also sometimes directly threatened PBG members with higher prices on Sanofi Pediatric vaccines if they bought Menveo. For example, an internal Sanofi slideshow describes a “case study” of how a Sanofi sales person used the Bundle to deter a PBG member from switching to Menveo.<sup>194</sup> This slideshow explained that this unidentified customer was a member of the PBG CCPA, bought significant amounts of Pediatric vaccines from Sanofi, and was “thinking of switching to Menveo due to price.”<sup>195</sup> The Sanofi salesperson (called a “Vaccine Specialist” or “VS” for short) then used Sanofi’s “Cost Analysis Calculator” to show this customer “the consequences of changing to Menveo and losing their valuable sanofi pasteur CCPA pricing,” after which the customer “assured the VS that they would not order any Menveo.”<sup>196</sup>

132. In sum, Sanofi was not some passive actor that happened to benefit from the PBGs’ efforts to monitor and enforce compliance with the Bundle at the purchaser level. Sanofi specifically designed its PBG contracts to pay PBGs to monitor and enforce compliance with the Bundle, pushed the PBGs to monitor and enforce compliance, specifically identified the particular members that PBGs should warn about noncompliance or terminate for refusal to return to compliance,

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<sup>193</sup> SP 01688135-36 (April 2010 internal Sanofi email chain. It describes an internal Sanofi conference call that explained to Sanofi employees how to detect when customers were not complying with their Sanofi PBG agreements and what to do when they found noncompliant customers. It explains that Sanofi Vaccine Specialists “play a critical role in driving growth and monitoring compliance; however, you are not the compliance police. Discussing compliance with your customers can harm your relationships, these discussions are the responsibility of the contract owners. Keep Nicole [a higher level Sanofi employee] informed about compliance issues so she can alert PediaFed [a PBG]. Kathy at PediaFed will approach the customer and try to preserve the business; she will give them the benefit of the doubt and try to help them see the error of their ways.”).

<sup>194</sup> SP 00437752 at SP 00437759 (internal Sanofi slideshow giving an example of how its bundled PBG pricing prevented a customer from switching to Menveo. It states “Situation: Top loyal pediatric accounts, thinking of switching to Menveo due to price. Actions: Used prepared Cost Analysis Calculator along with slides from the BRT to show them the consequences of changing to Menveo and losing their valuable Sanofi pasteur CCPA pricing. Results: After reviewing the details, the office assured the VS that they would not order any Menveo”).

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

and sometimes directly threatened PBG members with bundled penalties in order to obtain compliance.

133. **f. Novartis Recognized that Sanofi's PBG Contracts Were Bundled.** Professor Rubinfeld's claim that Sanofi PBG members did not face bundled penalties also contradicts contemporaneous Novartis strategic documents recognizing that Sanofi PBG members risked expulsion for buying Menveo. [REDACTED]

[REDACTED]

[REDACTED]<sup>197</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>198</sup> The fact that Sanofi's competitor in the MCV4 market recognized that Sanofi's PBG contracts bundled at the purchaser level refutes Professor Rubinfeld's claims that the PBG contracts were not bundled.

*2. Sanofi's PBG Menactra Loyalty Requirement Was Designed to Functionally Require Near-100% MCV4 Exclusivity*

134. **a. Internal Sanofi Documents Show PBG Agreements Were Meant to Require 100% Menactra Loyalty and That Sanofi Told Customers So.** As noted in the previous section, when PBGs implemented the Bundle, 75% of PBGs required a 100% commitment, 20% required a 90% commitment and only 5% required an 80% commitment, meaning that the lion's share of PBG buyers actually had 100% commitments.<sup>199</sup> In my opening merits report, I also cited contemporaneous internal Sanofi business records observing that Sanofi's requirement that each PBG's members collectively purchase at least 80% as much Menactra as they did in the prior year was designed to functionally require 100% loyalty to Menactra.<sup>200</sup> For example, in one email chain Sanofi's Senior Deputy Director for Regional Accounts is asked whether the 80% of prior year Menactra purchases requirement is "due to market conditions (smaller available age cohort to get vaccinated) or Novartis menveo?" and responds "Market conditions based on available age cohort."<sup>201</sup> Similarly, an email from one of Sanofi's Regional Account Managers sent to many lower-level Sanofi employees stated that Sanofi's

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<sup>197</sup> [REDACTED]

<sup>198</sup> [REDACTED]

<sup>199</sup> "MRebut20 PBG exact mct commitment requirements.csv".

<sup>200</sup> Elhauge Merits Report ¶96.

<sup>201</sup> Elhauge Merits Report n. 119, citing SP 00522766.

PBG contracts “are based on 100% loyalty to our vaccine brands. The reason why we gave the 20% cushion was not to allow the usage of another competitive product. The 20% was calculated into our contract performance to give the physician some cushion with the shrinking cohort (less adolescents to immunize) and shrinking market (slow economy). Again, it is not a permit to use a competitive vaccine.”<sup>202</sup> Similarly, another Sanofi email explained that “the 20% gap for Menactra is to compensate for a shrinking adolescent market; it does not mean that [PBG] members can order 20% of their MCV4 needs from Novartis.”<sup>203</sup>

135. Professor Rubinfeld’s only response to these contemporaneous internal Sanofi statements is that they were made not by Sanofi “executives,” but instead by “regional sales managers.”<sup>204</sup> But senior Sanofi employees (such as one of its “Directors of Account Management”) affirmed these statements.<sup>205</sup> Further, Professor Rubinfeld provides no reason why one should ignore the statements of Sanofi’s regional account managers, who are in fact the relevant employees on this issue given that they are in of the front lines of enforcing Sanofi’s bundled contracts. Moreover, Professor Rubinfeld *himself* elsewhere cites statements by Sanofi regional account managers when describing what Sanofi’s contracts allow.<sup>206</sup>

136. **b. Even 80% Prior Year Purchase Requirement Would Functionally Impose 100% Exclusivity Given Customers’ Widespread Preference for Standardization on One MCV4 Vaccine.** Professor Rubinfeld also ignores that customers’ preference to standardize on a single MCV4 vaccine means that even a bundle that technically requires less than a 100% Menactra share will still functionally result in customers purchasing 100% of their MCV4 from Sanofi. I showed in my opening merits report that customers prefer to standardize on a single MCV4 vaccine because it reduces paperwork and minimizes errors.<sup>207</sup>

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<sup>202</sup> Elhauge Merits Report n. 119, citing SP 01690197.

<sup>203</sup> SP 01688135 at SP 01688136.

<sup>204</sup> Rubinfeld Report ¶152.

<sup>205</sup> SP 01688135 (Sanofi’s “Director Account Management –West” affirmed a Sanofi regional account manager’s email which had stated “20% gap on Menactra is to compensate for a shrinking adolescent market; it does not mean that PediFed members can order 20% of their MCV4 needs from Novartis.”).

<sup>206</sup> Rubinfeld Report ¶159 (“Darren Leber, a regional account manager at Sanofi, testified that physicians can ‘jump around to any contract at the flip of a dime.’”).

<sup>207</sup> Elhauge Merits Report ¶226.

The data in this case confirms this: 79% of private customers standardize 100% of their MCV4 purchases on only Menveo or only Menactra (rather than a mix).<sup>208</sup>

137. **c. PBG Bundle's Restraining Effect Continued Beyond 2011.** Professor Rubinfeld theorizes that the restraining effect of the Bundle decreased from 2011 onward because demand for MCV4 vaccines was increasing during this period and Sanofi's contracts with PBGs required the PBGs' members to collectively purchase 80% as much Menactra as they did the prior year.<sup>209</sup> This argument fails to refute the restraining effect of Sanofi's PBG Bundle for several reasons.

138. *First*, this argument does not bear at all on the restraining effect of the Sanofi PBG Bundle in 2010, which is the most relevant period for assessing the Bundle's anticompetitive effects because it is right after the Bundle was imposed and Menveo entry occurred. Professor Rubinfeld admits that the MCV4 market was shrinking from 2009 to 2011,<sup>210</sup> which corroborates the internal Sanofi documents I cited stating that the 80% of prior year Menactra purchases requirement was meant to accommodate for shrinking demand, not Menveo purchases.

139. *Second*, even if one accepted Professor Rubinfeld's argument that Sanofi's PBG Bundle did not technically require 100% MCV4 exclusivity after the market started expanding in 2012, customers' preferences for standardization would still functionally result in a 100% MCV4 exclusivity requirement. As I just explained above, because the evidence shows that customers strongly prefer to standardize on a single MCV4 vaccine, requiring them to purchase Menactra for a significant portion of their MCV4 needs (even if that portion is less than 100%) will generally cause customers to purchase 100% Menactra.

140. *Third*, Professor Rubinfeld's claim that the restraining effect of the PBG bundle waned when the MCV4 market began growing in 2012 is contradicted

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<sup>208</sup> "MRebut04 Standardization Histogram June 2010-July 2011.csv". This statistic is calculated based on the first 12 months of complete IMS DDD data following Menveo entry, which is the same period used for my Menveo share regression.

<sup>209</sup> Rubinfeld Report ¶156, Exhibit 13.

<sup>210</sup> Rubinfeld Report ¶156.

by the fact that Menactra’s MCV4 share among Sanofi PBG members was consistently above 90% throughout 2010-2013.<sup>211</sup>

141. **d. Difference Between PBG and Systems Compliance Requirements.** Professor Rubinfeld claims that I do not provide an explanation of why Sanofi used a different benchmark to determine Menactra loyalty for PBGs than for 4P systems.<sup>212</sup> The minimum “market share” requirement for PBGs was that they purchase at least 80% as much Menactra in the current year as they did in the prior year, whereas the “market share” requirement for 4P systems was that their current year Menactra purchases be at least 90% of their prior year MCV4 purchases. The difference here is practically irrelevant because, as I explained above, customers’ inherent preferences for standardizing on a single MCV4 vaccine mean that any requirement that customers purchase a significant portion of their MCV4 vaccines from Sanofi will generally cause them to purchase 100% of their MCV4 vaccines from Sanofi. Ultimately, the reason why Sanofi chose slightly different minimum Menactra requirements for PBGs and 4P systems is irrelevant: the only relevant question is whether the Bundle in the PBG and 4P system agreements had an anticompetitive effect, and I have shown that they have. Further, Professor Rubinfeld’s purported theory for why the benchmarks differ between PBGs and 4P systems—that Sanofi intended “to provide customer flexibility”<sup>213</sup>—makes no sense because the clear less restrictive way of providing customer flexibility is not to condition Pediatric prices on Menactra loyalty at all.

142. **100% Exclusivity Not Necessary for Anticompetitive Restraint.** Professor Rubinfeld’s claim that Sanofi’s PBG agreements did not require 100% MCV4 exclusivity also ignores the economic literature showing that 100% exclusivity is not necessary for an anticompetitive restraint.<sup>214</sup>

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<sup>211</sup> “MRebut4006 mct share all PBGs.csv”. Menactra’s share among Sanofi PBG members was 94%, 91%, 90%, and 91%, respectively, from 2010-2013.

<sup>212</sup> Rubinfeld Report ¶155.

<sup>213</sup> Rubinfeld Report ¶155.

<sup>214</sup> EINER ELHAUGE, U.S. ANTITRUST LAW & ECONOMICS 405-406 (2d ed. 2011) (“loyalty discounts or rebates are often less than 100% exclusive. They may, for example, make the receipt of discounts or rebates conditional on buyers making 80% or 90% of their purchases from the defendant, thus restricting rivals to 10–20% of sales to those buyers. Because the anticompetitive effects generally turn on the total share of the market foreclosed, such agreements raise very similar issues to exclusive dealing. For example, if the loyalty agreements foreclose 90% of sales to buyers who make 80% of purchases, then they achieve 72% marketwide foreclosure. This is likely to be even more anticompetitive than 100% exclusive dealing agreements with buyers who make 70% of purchases, which forecloses only 70% of the market.”); Willard K. Tom, David A.

### 3. Technical Legal Terminability of Sanofi's PBG Agreements Does Not Make them Practically Terminable

143. Professor Rubinfeld observes that PBGs have the legal right to terminate their agreements with PBGs with 30 days written notice, but notably does not appear to draw any economic conclusions from this fact.<sup>215</sup> Indeed, the economic literature is clear that bundled contracts, and contracts that restrain customer purchases from rivals in general, can anticompetitively restrain customer decisions even when they are terminable at will.<sup>216</sup>

144. Here, Sanofi's PBG contracts restrain customer decisions, despite their legal terminability, because the legal ability of a customer to terminate its PBG agreement does not actually help the PBG member avoid the bundled penalties. Indeed, if a PBG member were to terminate its agreement it would either have to start purchasing Sanofi Pediatric vaccines at the higher penalty prices on Sanofi's no-contract or GPO access programs, or suffer an implicit

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Balto & Neil W. Averitt, *Anticompetitive Aspects of Market-Share Discounts and Other Incentives to Exclusive Dealing*, 67 ANTITRUST L.J. 615 at 622–624 (1999).

<sup>215</sup> Rubinfeld Report ¶157.

<sup>216</sup> See Einer R. Elhauge, *Defining Better Monopolization Standards*, 56 Stan. L. Rev. 253, 340–42 (2003); Louis Kaplow & Carl Shapiro, *Antitrust*, Handbook of Law and Economics 1212 n. 221 (A. Mitchell Polinsky & Steven Shavell, eds., Elsevier, 2007) (terminability does not eliminate anticompetitive effects because “exclusive dealing policies can have anticompetitive effects even without the use of formal exclusive-dealing contracts, much less long-term exclusive dealing contracts”); Willard K. Tom, David A. Balto & Neil W. Averitt, *Anticompetitive Aspects of Market-Share Discounts and Other Incentives to Exclusive Dealing*, 67 Antitrust L.J. 615, 623–24 (2000) (“Even if the contracts are of short duration or are terminable at will, switching to the entrant could be an irrational strategy for a distributor for a variety of reasons, including the new entrant's need for a broad network of distributors in order to satisfy customer needs or to achieve economies of scale, and the difficulty the entrant may have in developing brand recognition without widespread distribution. Thus, there might be a collective action problem: it would be rational for a large number of distributors to switch, if only they could coordinate with each other, but it might be irrational for any one distributor to switch independently”); MICHAEL D. WHINSTON, LECTURES ON ANTITRUST ECONOMICS 166 (MIT Press, Cambridge 2006) (if there are a number of firms trying to secure exclusive deals or downstream consumers (like the patients here), “exclusionary contracts need not have long durations to have an anticompetitive effect . . . . Indeed, we even could imagine these contracts being renewed each morning. Because the economic motives are the same each day, the equilibrium outcome will be as well”).



bundled penalty by buying less-preferred versions of its pediatric vaccines from other manufacturers, such as GSK.<sup>217</sup>

145. The documents and data in this case confirm that Sanofi has been able to restrain PBG members from freely purchasing Menveo even though the PBG agreements are legally terminable. Also, sales data shows that compliance with Sanofi's PBG agreements was so high that the PBG Bundle was economically equivalent to tying.<sup>218</sup> Moreover, my Menveo Share Regression analysis statistically shows that the bundled penalties that PBG members faced did restrain them from purchasing as much Menveo as they otherwise would have.<sup>219</sup>

#### *4. PBG Bundled Penalties Were Large*

146. In my opening merits report I showed that buying group members would have to pay 37-47% higher contract prices on Sanofi's Pediatric vaccines if they did not commit to Menactra loyalty or were terminated from their Sanofi PBG for buying Menveo.<sup>220</sup> I further showed that the average PBG order would not qualify for any VaxMax discounts if was purchased under Sanofi's disloyal contract programs, meaning that accounting for VaxMax discounts would *increase* the size of these disloyalty penalties for the average PBG member.<sup>221</sup> Professor Rubinfeld is wrong that these large bundled penalties were in fact "small."<sup>222</sup>

147. **a. Option of Switching to another Sanofi-loyal PBG doesn't Eliminate Penalty or Restraint.** Professor Rubinfeld puts forth the theory that PBG members can avoid any bundled disloyalty penalty on Sanofi Pediatric vaccines by simply switching to a different Sanofi PBG if they are terminated from

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<sup>217</sup> [REDACTED]

[REDACTED] SP 01688135 at SP 01688136 (internal Sanofi email stating "Compliance to full-line PBG contract drives loyalty and growth."); SP 00272154 at SP 00272155 (internal Sanofi presentation describing its "2010 Action Plan." For Menactra, it states "Retain Menactra market share by leveraging our contract strategy in our targeted health systems and PBGs to drive conversions and stronger commitment to the sp Portfolio").

<sup>218</sup> Elhauge Merits Report Part V.E.2.

<sup>219</sup> Elhauge Merits Report Part V.E.4.

<sup>220</sup> Elhauge Merits Report ¶¶113, Table 2.

<sup>221</sup> Elhauge Merits Report Table 9.

<sup>222</sup> Rubinfeld Report Part V.A.4.

their current Sanofi PBG.<sup>223</sup> In other words, Professor Rubinfeld is assuming that medical providers will lie when signing their PBG commitments and that PBGs will want to take on a new member who did not abide by his commitments and therefore could threaten the PBGs right to administrative fees and contract prices. Notably, Professor Rubinfeld does not cite a *single* example of a PBG member abusing Sanofi's contract system this way. And the evidence indicates this strategy would not be effective, for multiple reasons.

148. First, a customer that was just terminated from its old Sanofi PBG for not abiding by its Menactra loyalty commitment would also have to make a Menactra loyalty commitment with its new Sanofi PBG (given that all required Menactra loyalty commitments).<sup>224</sup> So simply switching Sanofi PBGs would not allow the customer to escape the obligation to be loyal to Menactra. If this customer then continued to buy Menveo, it would be kicked out of its new PBG too.

149. Second, all Sanofi PBGs must tell Sanofi when they want to add new members or terminate existing members,<sup>225</sup> so Sanofi has complete data on which customers were recently terminated by their PBGs and which are attempting to join new PBGs. Sanofi could therefore easily recognize if a customer was trying to abuse its contract system by lying about making a commitment to Menactra loyalty after just being terminated for violating the commitment.

150. Third, the evidence shows that Sanofi PBGs (with significant help from Sanofi) monitor and enforce compliance with the Menactra loyalty commitments,<sup>226</sup> and thus would not want to add new customers that had just been terminated by another PBG for noncompliance.

151. The only support Professor Rubinfeld cites for his theory is a Sanofi regional account manager's deposition testimony that physicians "jump around to any contract at the flip of a dime."<sup>227</sup> This statement is internally inconsistent (Professor Rubinfeld argues elsewhere that statements of mere "regional account

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<sup>223</sup> Rubinfeld Report ¶159.

<sup>224</sup> See *supra* Section A.1.

<sup>225</sup> McDonald Declaration Exhibit A, section 2.2 (template Sanofi PBG agreement requiring the PBG to "promptly advise Sanofi Pasteur Inc. of any changes, additions or deletions to the list of Members (Exhibit A) as they occur.").

<sup>226</sup> *Supra* Section A.1.

<sup>227</sup> Rubinfeld Report ¶159.

managers” are not reliable<sup>228</sup>) and contradicted by the data. Sanofi’s data shows that, since Menveo entry, 99% of PBG members have been part of only a single PBG in a given year.<sup>229</sup> This data affirmatively refutes Professor Rubinfeld’s claim that PBG members can abuse Sanofi’s contract system by repeatedly violating their PBG membership agreements and jumping to new PBGs.

152. **b. Option of Switching to GSK-Loyal PBG and Buying GSK Vaccines Does not Eliminate Bundled Penalty or Restraint.** Professor Rubinfeld also asserts incorrectly that a Sanofi PBG member could avoid suffering a bundled penalty for buying Menveo by switching to buying GSK Pediatric vaccines under a GSK PBG agreement.<sup>230</sup> Professor Rubinfeld is just ignoring that having to switch to less-medically preferred Pediatric vaccines is itself a form of bundled disloyalty penalty. Customers who are currently buying Sanofi Pediatrics have what economists describe as a “revealed preference” for particular Sanofi Pediatric vaccines—their decision to purchase particular Sanofi Pediatric vaccines reveals that they prefer those vaccines to the alternatives. Consequently, forcing these customers to switch to a less-preferred Pediatric vaccine is itself a penalty. Thus, customers who decide to switch to GSK Pediatric vaccines after their Sanofi Pediatric vaccine prices artificially increase have not avoided a bundled penalty, but instead have suffered *different type* of bundled penalty. Moreover, the possibility of switching to GSK Pediatric vaccines must not have negated the restraining effect of the Bundle because Sanofi’s contemporaneous internal business records, Novartis’s contemporaneous internal business records, and rigorous statistical analysis all confirm that the Bundle restrained Menveo sales.<sup>231</sup>

153. **c. PBG Bundled Penalties Are Still Large (and Sometimes are Even Larger) After Accounting for VaxMax Discounts.** In my opening merits report I showed that PBG members had to pay 37-47% higher contract prices for Sanofi’s Pediatric vaccines if they did not contractually commit to Menactra loyalty, and instead purchased under Sanofi’s GPO-Access or No-Contract programs.<sup>232</sup> Professor Rubinfeld does not dispute this fact. However, he argues

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<sup>228</sup> Rubinfeld Report ¶152.

<sup>229</sup> “MRebut101 Num PBG Groups per Year.txt”.

<sup>230</sup> Rubinfeld Report ¶159.

<sup>231</sup> Elhauge Merits Report V.E.1 (Sanofi and Novartis internal documents acknowledging restraining effect of the Bundle. Professor Rubinfeld does not dispute that Sanofi and Novartis internally acknowledged that the Bundle restrained Menveo sales); Elhauge Merits Report Part V.E.4 (Menveo share regression).

<sup>232</sup> Elhauge Merits Report ¶113, Table 2.

that I “overstated” these bundled penalties by “ignoring” VaxMax discounts.<sup>233</sup> I did not ignore VaxMax discounts. To the contrary, I showed that the average PBG order would not qualify for any VaxMax discounts if purchased under Sanofi’s disloyal contract programs.<sup>234</sup> Professor Rubinfeld also acknowledges that the VaxMax discounts a customer would receive under the PBG program can often be *higher* than the VaxMax discounts they would qualify under Sanofi’s disloyal programs,<sup>235</sup> meaning that incorporating VaxMax discounts into customers’ prices actually *increases* the penalties in many situations.

154. Professor Rubinfeld asserts that, after accounting for VaxMax discounts, the average penalties PBG members would face for disloyalty to Menactra would be “only” 16% for Pentacel, and 18-28% for Sanofi’s other Pediatric vaccines.<sup>236</sup> Even if (contrary to fact) this were true, 16-24% bundled penalties on Sanofi’s Pediatric vaccines are hardly inconsequential, especially when one considers that restrained customers used many more doses of pediatric vaccines than MCV4 vaccine. Indeed, Professor Rubinfeld’s suggestion here that such penalties would not suffice to divide the market conflicts with his claim elsewhere that a 4% penalty on Menactra alone sufficed to divide the MCV4 market.<sup>237</sup> Moreover, Professor Rubinfeld artificially reduced these bundled penalty percentages by ignoring other discounts, such as seasonal, online, and cash discounts.<sup>238</sup> Table 3 below is a corrected version of Professor Rubinfeld’s

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<sup>233</sup> Rubinfeld Report ¶160.

<sup>234</sup> Elhauge Merits Report Table 9.

<sup>235</sup> Rubinfeld Report n. 248.

<sup>236</sup> Rubinfeld Report ¶160, Exhibit 14. Professor Rubinfeld lists the range of penalties for Pediatric vaccines as 18-24% because he ignores the 28% penalty for Tripedia.

<sup>237</sup> See *infra* Part V.A.2.

<sup>238</sup> Professor Rubinfeld also erroneously failed to consider the fact that medical providers who purchase through an intermediary, such as a wholesaler or a distributor, are not eligible for VaxMax discounts, but that does not have a significant effect on PBG member penalties because only 1% of PBG members ordered through wholesalers or distributors. See Rubinfeld Report ¶527. Professor Rubinfeld also erroneously argues that customers could further reduce bundled penalties by consolidating their orders to obtain larger VaxMax discounts. Rubinfeld Report ¶160. His argument ignores that such consolidation would inflict inventory costs that make such consolidation unfeasible at any customers and that would themselves impose a penalty. See *infra* Part V.F.2; Mazutis Deposition at 273 (“Knowing [the System] Gunderson very well and how they operate as a health system and being efficient with their purchasing and minimizing inventories, like other health systems, they want to minimize their inventory levels, order just in time, so when they get a requisition from a department or a site, they want to place the order right away. So VaxMax doesn’t necessarily work optimally for them.”).



Exhibit 14. It shows that, even if one ignores the bundling of PBG administrative fees, the bundled penalties for PBG members were on average 22% for Pentacel and 25-36% for Sanofi's other Pediatric vaccines.

<b>Table 3: Weighted Average Penalties PBG Members Faced for Switching to Menveo (Corrected Version of Rubinfeld Exhibit 14) (Admin Fees Excluded)<sup>239</sup></b>			
<b>Product</b>	<b>Average Actual PBG Price Paid</b>	<b>Average Hypothetical Price Paid Under GPO Access Program</b>	<b>% Penalty for Switching to Menveo</b>
ActHIB	\$14.14	\$19.28	36%
Daptacel	\$13.74	\$17.26	26%
IPOL	\$15.83	\$19.78	25%
Pentacel	\$47.03	\$57.29	22%
Tripedia	\$13.82	\$18.25	32%

155. Further, these bundled penalties are even higher if one incorporates administrative fees into PBG members prices using the same methodology Professor Rubinfeld did for calculating incremental Menactra prices.<sup>240</sup> Table 4 below that, if one incorporates PBG administrative fees, the penalties on Sanofi's Pediatric vaccines range from 28-44%.

<sup>239</sup> "MRebut71 Corrected Weighted Average Penalties.xlsx" (PBG sheet).

<sup>240</sup> Rubinfeld Report n. 641, and Rubinfeld backup program "PBG.sas".

<b>Table 4: Weighted Average Penalties PBG Members Faced for Switching to Menveo (Corrected Version of Rubinfeld Exhibit 14) (Admin Fees Included)<sup>241</sup></b>			
<b>Product</b>	<b>Average Actual PBG Price Paid</b>	<b>Average Hypothetical Price Paid Under GPO Access Program</b>	<b>% Penalty for Switching to Menveo</b>
ActHIB	\$13.41	\$19.28	44%
Daptacel	\$13.04	\$17.26	32%
IPOL	\$15.02	\$19.78	32%
Pentacel	\$44.63	\$57.29	28%
Tripedia	\$13.12	\$18.25	39%

156. Below in Part V.F.3., I show that these substantial bundled penalties significantly reduced the incremental Menactra prices Novartis had to overcome in order to convert a restrained customer from buying Menactra in a way that confirms the Bundle divided the MCV4 market and substantially foreclosed competition from Novartis.

#### *5. PBG Incentives to Terminate Noncompliant Members*

157. Professor Rubinfeld asserts that Sanofi PBG members did not face any bundled penalties based on his claim that Sanofi PBGs provided “little incentive” to terminate members for noncompliance.<sup>242</sup> His claim conflicts with all the evidence showing that (1) Sanofi and Novartis thought the PBG contracts did create a bundle that restrained choices and (2) the data and regressions showing it actually had this effect.<sup>243</sup> It also conflicts with the extensive evidence that the PBGs *did* actually terminate members for noncompliance directly disproves his claim. Professor Rubinfeld’s other related claims are likewise wrong, as I explain below.

158. **a. Fact That PBGs Did Terminate Members for Noncompliance Directly Disproves Professor Rubinfeld’s Claim That They Did Not Have Incentives to Do So.** Professor Rubinfeld’s speculation about Sanofi PBGs’

<sup>241</sup> “MRebut71 Corrected Weighted Average Penalties.xlsx” (PBG sheet).

<sup>242</sup> Rubinfeld Report Part V.A.5.a, ¶¶162-178.

<sup>243</sup> See *supra* Part II.A; *infra* Part V.E.



incentives to terminate members for noncompliance is evidently wrong because there is extensive evidence that PBGs did actually terminate members for noncompliance.<sup>244</sup> This fact alone completely refutes Professor Rubinfeld's claim that Sanofi PBGs were not incentivized to terminate PBG members.

159. **b. Sanofi Specifically Designed its PBG Agreements to Incentivize PBGs to Maintain Members' Menactra Compliance.** As discussed above, the fact that PBGs actually did terminate members for noncompliance directly shows that they had incentives to do so. And the evidence shows that Sanofi's contracts are what gave Sanofi PBGs those incentives. Contemporaneous internal Sanofi documents show that Sanofi specifically designed its PBG agreements with the purpose of incentivizing PBGs to make sure their members bought Menactra instead of Menveo.<sup>245</sup> Sanofi's PBG contracts paid PBGs to monitor and enforce their members' loyalty to Menactra by conditioning administrative fees not only on Menactra, but also on Sanofi's Pediatric vaccines on the PBGs' members collectively maintaining Menactra loyalty. Administrative fees are PBGs' only source of revenue, so the possibility of losing them was a strong incentive to ensure that members bought Menactra.<sup>246</sup>

160. **c. Fact that Sanofi Paid PBGs to Terminate Noncompliant Members Instead of Terminating Noncompliant Members Itself Is Not Economically Relevant.** Professor Rubinfeld claims that Sanofi's conduct did not cause PBG members to face bundled terms based on the premise that Sanofi does not have a direct contractual relationship with PBG members.<sup>247</sup> But this fact is economically irrelevant: the relevant economic question is whether Sanofi's conduct caused PBG members to pay bundled penalties if they switched to Menveo. Thus, economically it is irrelevant whether Sanofi directly terminates noncompliant members itself or pays or incentivizes PBGs to do so, so long as Sanofi's conduct causes PBG members to face bundled penalties that they wouldn't face otherwise.

161. Professor Rubinfeld asserts that "if Sanofi wanted to impose a multi-product loyalty requirement on PBG members, it could have specified that

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<sup>244</sup> *Supra* Section A.1.

<sup>245</sup> Elhauge Merits Report ¶105, citing SP 00945373 at SP 00945387-89.

<sup>246</sup> Elhauge Merits Report ¶95.

<sup>247</sup> Rubinfeld Report ¶162.

requirement in its contract with PBGs.”<sup>248</sup> His economic inference that this proves that Sanofi did not want to restrain buyers is inaccurate because that evidence is equally consistent with Sanofi preferring to work through a middleman either because that was more effective, or to try and place a buffer between Sanofi and the anticompetitive conduct either in an attempt to avoid legal penalties, or as a means to try to insulate itself from a tarnished brand image and loss of good will with customers. Further, there was copious other evidence that Sanofi did want to restrain buyers and thought that the Bundle did so.<sup>249</sup>

162. **d. Professor Rubinfeld Is Wrong That PBG Members Would Terminate Members for Buying Menveo In the But-for World.** Professor Rubinfeld theorizes that Sanofi PBGs would terminate members for buying Menveo even if Sanofi had not engaged in any of the alleged anticompetitive conduct in this case.<sup>250</sup> Professor Rubinfeld bases this claim on the premise that PBGs would still “have an incentive to encourage their members to purchase as much Menactra as possible from Sanofi to maximize the administrative fees” in the absence of the conduct.<sup>251</sup> His reasoning is wrong for two reasons.

163. *First*, the evidence shows directly that Sanofi buying groups (like PBGs and GPOs) required their members to be loyal to Menactra *only when* that buying group’s Sanofi contract paid the buying group to ensure its members’ Menactra loyalty. For example, Sanofi’s GPO Access contracts with GPOs pay the GPOs a 1% administrative fee on all of the Menactra purchases that GPO’s members make under the GPO Access program, but none of the administrative fees on GPO Access customers’ Sanofi purchases are conditioned in any way on Menactra loyalty.<sup>252</sup> Under Professor Rubinfeld’s logic, GPOs would nonetheless terminate GPO Access members for buying Menveo because they would purportedly have an “incentive” to encourage them to purchase as much Menactra as possible, but there is no evidence in this case that GPOs ever terminated GPO Access customers for buying Menveo, or even told members that they should buy Menactra instead of Menveo. This directly shows that there mere payment of administrative fees on members’ Menactra purchases is not a sufficient incentive to make buying groups terminate members for buying Menveo.

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<sup>248</sup> Rubinfeld Report ¶163.

<sup>249</sup> See Elhauge Merits Report Part V; *infra* Part V.

<sup>250</sup> Rubinfeld Report ¶163.

<sup>251</sup> Rubinfeld Report ¶163.

<sup>252</sup> See, e.g., SP 01125516 at SP 01125518.

164. *Second*, the logic behind Professor Rubinfeld's theory is unsound. Professor Rubinfeld concludes that PBGs would still have an incentive to drive their members to buy Menactra instead of Menveo in the but-for world based solely on the premise that they would still receive administrative fees on members' Menactra purchases in the but-for world.<sup>253</sup> Professor Rubinfeld's logic does not follow because he ignores that, absent the anticompetitive conduct, PBGs would be equally interested in obtaining administrative fees on member purchases of Menveo because allowing members to buy Menveo would no longer risk losing PBG administrative fees on other members' purchases of Menactra and on all member purchases of Sanofi pediatric vaccines. In the but-for world, PBGs would therefore simply have an incentive to maximize overall member MCV4 purchases, whereas in the actual world Sanofi's Bundle specifically incentivizes PBGs to drive only Menactra sales.

165. **e. Professor Rubinfeld is Wrong About what the Sanofi-AHP Contract Requires and What It Would Require in the But-for World.** Professor Rubinfeld argues that Sanofi's contract with the PBG Atlantic Health Partners ("AHP") indicates that PBGs would still impose bundling conditions on their members in the but-for world without the Bundle.<sup>254</sup> This argument fails for several reasons.

166. First, Professor Rubinfeld bases this argument on the claim that Sanofi's contract with AHP in the actual world is not bundled.<sup>255</sup> However, I showed that the plain language of the AHP-Sanofi contract "suggests the administrative fees are bundled because it says if performance for the categories differs, then the administrative fee will be at the lowest level achieved in any category."<sup>256</sup>

167. Second, Professor Rubinfeld's conclusion does not follow even if one interprets the Sanofi-AHP agreement not to condition the payment of Sanofi Pediatric administrative fees on AHP satisfying the Menactra loyalty requirement. Under this interpretation, the Sanofi-AHP contract would still contribute to the anticompetitive restraint because "making AHP's administrative fees on Menactra

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<sup>253</sup> Rubinfeld Report ¶163.

<sup>254</sup> Rubinfeld Report ¶¶164-165.

<sup>255</sup> *Id.*

<sup>256</sup> Elhauge Merits Report ¶98.

turn on the *collective* Menactra loyalty of its members created strong incentives for AHP to impose the Bundle on its members.”<sup>257</sup> As I explained in my opening merits report: “Sanofi’s contract incentivized AHP to impose the Bundle on its members because: (a) AHP could obtain the maximum total administrative fees only if its members collectively satisfied *all* three of the Meninge, Booster, and Pediatric market share requirements, and (b) every member’s purchases counted towards the benchmark, meaning that allowing members to join if they were loyal to just the Booster and Pediatric requirements would prevent AHP from obtaining the entire Menactra administrative fee.”<sup>258</sup> Professor Rubinfeld does not dispute this, but appears to be under the incorrect belief that this hypothetical interpretation of the Sanofi-AHP contract is what all PBGs’ Sanofi contracts would look like in the but-for world. Based on that incorrect belief, he concludes that all of the other Sanofi PBGs would still impose bundling conditions on their members in the but-for world, just like AHP did in the actual world.<sup>259</sup> Professor Rubinfeld is wrong because this is *not* what AHP’s or other Sanofi’s PBG contracts would require in the but-for world. The but-for world by definition means the world *but-for* the Sanofi contractual terms and conduct that cause purchasers to face bundled penalties for buying Menveo. Because the design of the Sanofi-AHP agreement (under this hypothetical interpretation) still causes AHP to impose conditions on members that make them pay bundled penalties for buying Menveo, by definition it must be different in the but-for world. Professor Rubinfeld also ignores the fact that Sanofi was directly involved in AHP imposing a bundled contract on the members and enforcing that bundle against members.<sup>260</sup>

168. Because the Plaintiffs only allege that Sanofi’s *bundling* is anticompetitive, Sanofi could still use contracts and engage in conduct that causes purchasers to face *single-product* penalties for buying Menveo (i.e., Sanofi could still do things that cause PBG members to pay higher prices *only on Menactra* if they are not loyal to Menactra). To illustrate, here I provide an example of a hypothetical Sanofi-PBG contract that would only cause PBG members to face *single-product* loyalty penalties if they buy Menveo:

169. Suppose at the beginning of each year each PBG had to identify to Sanofi: (a) which of its members made commitments to Sanofi Pediatric loyalty,

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<sup>257</sup> Elhauge Merits Report ¶99

<sup>258</sup> Elhauge Merits Report ¶99.

<sup>259</sup> Rubinfeld Report ¶165.

<sup>260</sup> See *supra* section A.1.

and (b) which of its members made commitments to Menactra Pediatric loyalty. Members would be free to commit to just Sanofi Pediatric loyalty, just Menactra loyalty, or both. A member's eligibility for Sanofi's loyal Pediatric prices would depend solely on whether the member made a Sanofi Pediatric loyalty commitment, and a member's eligibility for Sanofi's loyal Menactra price would depend solely on whether the member made a Menactra loyalty commitment. If the **subset** of PBGs members who committed to Sanofi Pediatric loyalty collectively purchased 90% of their Pediatric vaccines from Sanofi, then Sanofi would pay administrative fees on their Sanofi Pediatric purchases. Purchases made by other PBG members would not affect whether this subset loyalty condition was met. If the **subset** of PBGs members who committed to Menactra loyalty collectively purchased 90% of their MCV4 vaccines from Sanofi, then Sanofi would pay administrative fees on their Menactra purchases. Purchases made by other PBG members would not affect whether this subset loyalty condition was met. With such subset loyalty conditions, any given Sanofi PBG maximizes its administrative fees simply by signing up as many members who are willing to abide by at least one of the loyalty commitments (the Sanofi Pediatric loyalty commitment and/or the Menactra loyalty commitment). Such subset loyalty conditions thus would incentivize PBGs to obtain and enforce separate single product loyalty commitments on Sanofi Pediatrics and Menactra without incentivizing PBGs to imposed bundled loyalty commitments. It would be in the Sanofi PBGs' interest to allow members to join even if they were only willing to commit to Sanofi Pediatric loyalty (but not Menactra loyalty), because those members' unwillingness to buy Menactra would not jeopardize administrative fees on Menactra purchases by the subset of members who were willing to commit to Menactra. Further, the PBG would have no incentive to force such a member to make the Menactra loyalty commitment because it could more easily receive administrative fees on that member's *Menveo* purchases by also agreeing to a contract with Menveo's seller.<sup>261</sup> In short, imposing separate loyalty conditions on multiple products that must be met by *all* PBG members create powerful incentives for PBGs to impose bundled loyalty commitments on its members. In contrast, using separate loyalty conditions limited to the subset of members who make single-product loyalty commitments creates only incentives for PBGs to obtain

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<sup>261</sup> Even if receiving administrative fees on members' Menveo purchases was not an option, trying to force a member that only wanted to commit to Sanofi Pediatric loyalty to also commit to Menactra loyalty would not work due to competition between the PBGs. If one PBG tried to force a member to commit to Menactra loyalty that way, the member could join an alternative PBG that did not do so, and thus the PBG that had tried to force the member to also commit to Menactra loyalty would lose administrative fees on *all* of the members' purchases.

single product loyalty commitments. Such subset loyalty conditions are what Sanofi's contracts with PBGs would likely require in the but-for world, and it would result in PBG members facing higher prices only on their *Menactra* purchases if they bought Menveo. As I explain below in Part V.A.2., such a single-product Menactra loyalty term would have little-to-no restraining effect on Menveo sales and would not anticompetitively divide the MCV4 market.

170. Relatedly, Professor Rubinfeld asserts that AHP has no incentive to terminate members for buying Menveo based on the premise that AHP's President, Mr. Winokur, testified that a PBG has "no incentive . . . to terminate a member if that member is purchasing all of its other vaccines from Sanofi except for Menveo."<sup>262</sup> Professor Rubinfeld is mischaracterizing Mr. Winokur's testimony by excising the portions that contradict his argument. The actual full question was:

"Q: We spoke earlier about the fact that **a benchmark stays with you after the first two months of a contract even if you remove a member from your program. So my question is that there** – is it true that there is **often** no incentive for you to terminate a member if that member is purchasing all of its vaccines from Sanofi except for Menveo? A: Correct."<sup>263</sup>

This full deposition testimony makes clear that Mr. Winokur was testifying merely that PBGs don't necessarily have an incentive to *immediately* terminate a member that has started buying Menveo after the first two months of the benchmark period. The PBG would nonetheless still have an incentive to eventually terminate this member to deter others from becoming noncompliant, or better yet to *threaten* termination to bring the member back into compliance. Professor Rubinfeld instead miscites this deposition for the erroneous proposition that AHP testified that it *never* has an incentive to terminate members for buying Menveo when they are still buying other Sanofi vaccines, when the AHP testimony does not state any such thing.

171. Indeed, Professor Rubinfeld ignores Mr. Winokur's testimony in the same deposition that "if a member of Atlantic Health Partners buys a product that competes with Sanofi Pasteur or Merck vaccine, they risk being terminated by Atlantic Health Partners."<sup>264</sup> Professor Rubinfeld also ignores testimony in that

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<sup>262</sup> Rubinfeld Report ¶166, quoting an excerpt from Winokur Deposition, p. 148.

<sup>263</sup> Winokur Dep. 148.

<sup>264</sup> Winokur Dep. 68.



deposition where Mr. Winokur explicitly described how its members faced bundled penalties on Sanofi's other vaccines if they bought Menveo:

"A: if [a member] did not have access to our overall pricing because they were taken off of our contract and if they only reason they were using Menveo was to save a few dollars, that overall savings may not be realized if they don't have access to our contract pricing."<sup>265</sup>

Mr. Winokur further testified that "that many times accounts will move back to Menactra" after AHP explains to the member that they will have to pay higher prices on their other Sanofi vaccines if they continue to buy Menveo.<sup>266</sup>

172. **e. Professor Rubinfeld is Wrong that PBGs Will Not Terminate Members or Otherwise Enforce Compliance When Their Members Collectively Are Achieving High Compliance Rates.** Professor Rubinfeld theorizes that PBGs will not terminate noncompliant members when the PBG's members collectively are already meeting the required Menactra loyalty commitment.<sup>267</sup> He is wrong because: (i) the evidence directly shows that PBGs with high Menactra shares nonetheless still enforced compliance; (ii) Professor Rubinfeld is just ignoring that terminating a noncompliant member can deter other members from becoming noncompliant; and (iii) Professor Rubinfeld's theories as to why PBGs would not terminate noncompliant members are incorrect.

173. **(i) PBGs with High Menactra Shares Still Enforced Compliance By Threatening Members with Termination and Terminating Members Who Refused to Return to Compliance.** Professor Rubinfeld's claim is directly refuted by evidence that PBGs with high Menactra shares did actually terminate members for noncompliance.

174. For example, all three of the largest Sanofi PBGs (Main Street Vaccines, Atlantic Health Partners, and Pediatric Federation) monitored compliance and terminated members for noncompliance even though their members collectively had high Menactra shares. In December 2010, Atlantic Health Partners terminated three members for noncompliance (all three had stopped buying Menactra after Menveo entry) even though its members collectively had purchased Menactra for 95% of their MCV4 demand in 2010

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<sup>265</sup> Winokur Dep. 77.

<sup>266</sup> Winokru Dep. 80.

<sup>267</sup> Rubinfeld Report ¶¶167-171.

(since Menveo entry).<sup>268</sup> Similarly, Main Street Vaccines terminated at least 31 members for noncompliance (“mostly from Menveo/Boostrix” use) even though its members collectively have purchased Menactra for 91% of their MCV4 demand since Menveo entry.<sup>269</sup> Pediatric Federation likewise terminated a member for buying Menveo in 2012 even though its members bought Menactra for 90% of their MCV4 purchases that year.<sup>270</sup>

175. Although Professor Rubinfeld incorrectly focuses solely on actual terminations for noncompliance, the evidence shows that Sanofi and PBGs preferred to first threaten members with termination in order to persuade them to become compliant again, and that these threats often succeeded.<sup>271</sup> Indeed, all three of these biggest Sanofi PBGs monitored member compliance and would threaten to terminate noncompliant members even though their members were on the whole already buying 90% or more of their MCV4 from Sanofi.<sup>272</sup>

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<sup>268</sup> SP 01352043 (December 2010 email from AHP asking Sanofi to terminate “3 locations . . . for noncompliance”); “MRebut4004 SP 01352043 custs.csv” (excerpt of Sanofi transaction data showing these customers had stopped buying Menactra in June-August of 2010); “MRebut4007 AHP MCV4 purchases 2010.csv” (Menactra had 95% share among Atlantic Health Partner members from the beginning of IMS DDD data (July 2010) to the end of 2010).

<sup>269</sup> SP 00040533 at SP 00040543 (internal Sanofi presentation stating that Main Street Vaccines “called and sent letters and ultimately removed 31 members” who “were non-compliant (mostly from Menveo/Boostrix use)”. This presentation does not indicate the exact time period when Main Street Vaccines terminated these members); “MRebut4007 MSV MCV4 purchases since Jul2010.csv” (Menactra had 91% share among Main Street Vaccine members from July 2010 (beginning of IMS DDD data) onward).

<sup>270</sup> PF0037754 (Pediatric Federation terminating Modesto Pediatrics in 2012); “MRebut4007 PediaFed MCV4 purchases 2012.csv” (Menactra had 90% share among Pediatric Federation members in 2012).

<sup>271</sup> *Supra* Section A.1.

<sup>272</sup> SP 00487345 at SP 00487346 (Main Street Vaccines stating in its Contract Owner Questionnaire that it monitored compliance using member purchase data and manufacturer sales representatives, and that “If a rep or the reports indicate non-compliance [Main Street Vaccines] will drop them from the contract. [Main Street Vaccines] may or may not call the office first.”); AHP0002477 (March 2011 Atlantic Health Partners relaying to Sanofi that when a member asked about buying Menveo, AHP reminded the member that “participation in our program requires the use of Sanofi pediatric and adolescent vaccines, including Menactra” and that “if the practice decided to stay with Menveo we would take them off our Sanofi contract” which would result in an “increase in [their] overall vaccine costs.”). Pediatric Federation sent over a dozen letters to noncompliant members threatening to terminate them for buying Menveo. *Supra* note 142.

176. (ii) Professor Rubinfeld Ignores That Terminating a Noncompliant Member Can Deter Other Members from Becoming Noncompliant. Professor Rubinfeld's claim that PBGs have no incentive to terminate noncompliant members ignores that terminating noncompliant members deters other members from becoming noncompliant. Given the evidence shown above that there was a widespread practice of PBGs terminating members for noncompliance,<sup>273</sup> this deterrent effect was clearly a strong enough incentive to get PBGs to terminate members.

177. Professor Rubinfeld also once again ignores that the PBGs do not even need to actually terminate members to maintain compliance. As discussed above, the evidence shows that Sanofi and its PBGs preferred to first threaten noncompliant members with termination, which often was sufficient to get those members to become compliant again.

178. (iii) Professor Rubinfeld's Theories as to Why PBGs Would Not Terminate Noncompliant Members are Wrong. Professor Rubinfeld not only ignores the obvious reason why PBGs have an incentive to terminate noncompliant members (to deter others from becoming noncompliant), but also proposes three illogical theories in an attempt to argue that PBGs have an incentive to retain noncompliant members.

179. *First*, Professor Rubinfeld argues that PBGs have an incentive to retain members who are currently purchasing Menveo based on the premise that doing so will make it easier for the PBG to satisfy the Menactra benchmark the next year by lowering the PBG members' total Menactra purchases in the current year.<sup>274</sup> This theory fails for several reasons: (A) assuming the member continues to buy only Menveo, the PBG's total Menactra purchases in the current year are the same regardless of whether the PBG terminates that member, and thus keeping this member does not actually make it easier to satisfy the Menactra benchmark this year than if the PBG terminated this member; (B) not enforcing compliance against a noncompliant member actually reduces the probability that the PBG will satisfy the benchmark the next year because it deters other members from buying Menveo less than if the PBG terminated the noncompliant members; and (C) Professor Rubinfeld is ignoring what is clearly the best course of action for a PBG with a noncompliant member, which is to use the *threat* of termination to make this

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<sup>273</sup> *Supra* Part A.1.

<sup>274</sup> Rubinfeld Report ¶167.

member switch back to Menactra, which will necessarily increase the probability that the PBG satisfies the Menactra benchmark.

180. *Second*, Professor Rubinfeld asserts that PBGs do not have an incentive to terminate a PBG member that bought Menveo more than 12 months ago “because the 80% benchmark is reset based on the previous 12-months purchases.”<sup>275</sup> This theory is puzzling because the premise is that a member *was* noncompliant a long time ago but that the PBG successfully was able to make them compliant again. In that case, I would agree there is no incentive to terminate the currently compliant customer. But the hypothetical just assumes that Sanofi’s PBG contract successfully restrained Menveo sales and maintained Menactra sales. It cuts directly against the ultimate point that Professor Rubinfeld is trying to make: that the PBG contracts did *not* restrain customers from buying Menveo.

181. *Third*, Professor Rubinfeld argues that PBGs have an incentive to keep members who are buying Menveo but are still buying other Sanofi vaccines because terminating them would mean not receiving administrative fees on these members’ subsequent purchases of other Sanofi vaccines.<sup>276</sup> Again, Professor Rubinfeld is ignoring that retaining noncompliant members reduces the deterrent effect of termination on other members, and thus increases the chance that the PBG loses *all* of its administrative fees from *all* of its members’ purchases because it failed to meet Sanofi’s bundled loyalty benchmarks. Indeed, I showed above that there are many examples of PBGs terminating members for noncompliance even though they continued to buy Sanofi Pediatric vaccines (at penalty prices) afterwards.<sup>277</sup> Professor Rubinfeld is also again ignoring that *threatening* to terminate these members in order to make them compliant again is clearly the best strategy for the PBG.

182. **e. Professor Rubinfeld Is Wrong That The fact that 16,000 Customers Paid Penalty Prices Somehow Shows The Bundle Was Not Restraining.** In my report, I pointed out that a medical provider that terminated its PBG membership, and thus rejected the Bundle, would incur the penalty of disloyal penalty prices. I showed that this was not an illusory threat because

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<sup>275</sup> Rubinfeld Report ¶169.

<sup>276</sup> Rubinfeld Report ¶170.

<sup>277</sup> *Supra* Section A.1.

16,000 customers had paid disloyal prices for refusing to accept the Bundle.<sup>278</sup> Professor Rubinfeld makes various flawed attacks on this analysis.<sup>279</sup>

183. First, Professor Rubinfeld argues that if 16,000 customers refused to accept the Bundle, this is somehow inconsistent with my theory that the Bundle prevented Novartis from competing for loyal Sanofi customers. His argument is nonsense.<sup>280</sup> The buyers who rejected the Bundle are *unrestrained/disloyal* buyers in the part of the divided market for whom Novartis *can* compete. Indeed, although Professor Rubinfeld ignores this obvious point in this paragraph, in the next paragraph he acknowledges that these are unrestrained buyers.<sup>281</sup>

184. Second, Professor Rubinfeld claims that my argument implies that 16,000 members paid “disloyal prices *as a result*” of the Bundle.<sup>282</sup> I implied no such thing. I stated rather that this 16,000 number showed that the threat to impose penalty prices on those who would not accept the Bundle was a real one. Professor Rubinfeld seems to be confusing two separate things: (1) whether there were penalties for failing to make the required commitment; (2) whether violating a commitment led to enforcement. My point about the 16,000 was about point (1).

185. It may be that some of these 16,000 would not have made loyalty commitments to Sanofi pediatrics even without the bundle and thus would have paid some disloyal price regardless. Indeed, because buyers who are not loyal to Sanofi pediatrics are hurt less by the bundled penalty, they are precisely the buyers one would predict would be most likely to reject the Bundle and be allocated to the unrestrained part of the divided market. Professor Rubinfeld claims the evidence shows that before Menveo entry virtually all these customers either had made no loyalty commitment to Sanofi pediatrics (i.e., were off contract or on GPO access) or had bought no pediatrics strongly.<sup>283</sup> But that confirms precisely the market division predicted by both my theory and Sanofi and Novartis themselves.

186. The fact remains that all these customers refused to accept the Bundle and that 16,000 customers who were unwilling to make bundled loyalty commitments to Menactra and Sanofi pediatrics in fact paid penalty prices. Indeed, Rubinfeld only points to one customer who refused to make the bundled

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<sup>278</sup> Elhauge Merits Report ¶111.

<sup>279</sup> Rubinfeld Report ¶173-75.

<sup>280</sup> Rubinfeld Report ¶174.

<sup>281</sup> Rubinfeld Report ¶175 n.266.

<sup>282</sup> Rubinfeld Report ¶174.

<sup>283</sup> Rubinfeld Report ¶175.

loyalty commitment and yet avoided disloyal penalty prices on Sanofi pediatrics, the fact that MountainView got a 3P No Menactra contract,<sup>284</sup> and as far as I know it is the only such example. The point is that Sanofi does inflict disloyal penalty prices on those will not accept the loyalty commitments that Sanofi demands, which shows that Sanofi does maintain a difference between the prices paid by loyal and disloyal customers. This is something important to the economic modeling that Sanofi has previously disputed, claiming that Sanofi would simply lower prices to disloyal buyers to take them away from Novartis, eliminating the price difference between loyal and disloyal buyers.

*6. Sanofi Incentives to Terminate Noncompliant PBGs or Withhold Administrative Fees from Them*

187. **a. Termination of PBG Contract.** Professor Rubinfeld asserts “it would not make economic sense for Sanofi to terminate the entire PBG contract if the PBG failed to meet the performance requirements” because “Sanofi would lose substantial vaccine sales if it terminated the contracts.”<sup>285</sup> Again, Professor Rubinfeld is just ignoring that terminating a PBG for noncompliance would deter other PBGs from being noncompliant. Further, Professor Rubinfeld is again ignoring that Sanofi has a clear incentive to *threaten* to terminate PBG contracts for noncompliance in order to keep them compliant. Professor Rubinfeld’s argument is analogous to concluding that the United States’ nuclear arsenal has no deterrent effect because it has not dropped a nuclear bomb on anyone in 70 years.

188. Here, evidence that Sanofi did actually terminate a PBG for noncompliance directly disproves Professor Rubinfeld’s claim that Sanofi did not have incentives to do so. For example, Sanofi discontinued its contract with the PBG “South Florida Pediatric Partners” in September 2011 because the PBG “had compliance issues.”<sup>286</sup> July 2011 notes from a Sanofi salesperson tracking South

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<sup>284</sup> See Rubinfeld Report ¶194.

<sup>285</sup> Rubinfeld Report ¶179.

<sup>286</sup> SP 00757597 (September 30, 2011 internal Sanofi salesperson notes. It states “I met with Dr. Capote of South Florida Pediatric Partners this week in order to inform her that we will not be renewing our PBG contract with their group. This group of 8 pediatric clinics has had compliance issues over the past two years. In particular, 3 of their larger offices have continued to order competitive product while on contract and this has now been confirmed by the new DDD data. Dr. Capote understood our position and even apologized for those sits that continue to cause us problems with the contract. We were able to work out a plan to place the 5 compliant members on the PHA PBG contract and we should have this completed by early next week.”).



Florida Pediatric Partners' compliance stated that "while their Menactra usage is improving towards benchmark, there are several offices that have dabbled with Menveo and the Miami location appears to be using a large amount of Menveo on a regular basis. Again, this is the largest volume office within their group and I recommend they be removed from the contract."<sup>287</sup> IMS data shows that this PBG had purchased 85% of its MCV4 from Sanofi in 2010, but only 53% in 2011, which is consistent with Sanofi terminating them in part because of the drop in their compliance with the MCV4 loyalty requirement.<sup>288</sup>

189. **b. Withholding Administrative Fees.** I explained in my opening merits report that: (1) PBGs would lose 100% of their administrative fees on Sanofi's Pediatric vaccines if they did not satisfy the Menactra loyalty condition; (2) losing all of its administrative fees would be devastating to a PBG because administrative fees are their only source of revenue; and (3) Sanofi regularly reminded PBGs of this potential punishment.<sup>289</sup>

190. Indeed, Professor Rubinfeld acknowledges that Sanofi has withheld administrative fees from two PBGs because those PBGs failed to comply with the loyalty requirements in their Sanofi agreements.<sup>290</sup> One of those PBGs was South Florida Pediatric Partners,<sup>291</sup> which I just explained above was also had its contract completely terminated in part due to its members purchasing too much Menveo.

191. Professor Rubinfeld dubiously claims that "Sanofi has regularly paid administrative fees even if a PBG failed to meet the Menactra benchmark."<sup>292</sup> His first basis for this claim is a mischaracterization of the deposition testimony of Sanofi Employee Eric Grau, who in general gave self-serving testimony that remarkably resembled Sanofi counsel's litigation positions and contradicted his

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<sup>287</sup> SP 00094315 at SP 00094319.

<sup>288</sup> "MRebut4008 South Florida MCT Share Yearly.csv".

<sup>289</sup> Elhauge Merits Report ¶95.

<sup>290</sup> Rubinfeld Report ¶180, citing McDonald Deposition, pp. 155-157 ("A: So in the instance of PBG agents, looking at the table under 4.1, and looking at the measurement again, of 90 percent of previous year's sales to polio, pertussis, HIB, to Tdap, and 80 percent of meninge, there have been two buying groups that have not been paid since 2009.").

<sup>291</sup> McDonald Dep. 156-157.

<sup>292</sup> Rubinfeld Report ¶180.

own pre-litigation statements.<sup>293</sup> Mr. Grau actually testified merely that most PBGs receive administrative fees, which makes sense given that 99% of PBGs were compliant with the Menactra loyalty condition according to a corrected version of Professor Rubinfeld's compliance analysis.<sup>294</sup> Professor Rubinfeld inaccurately claims that Mr. Grau stated that Sanofi provided administrative fees *despite* the PBGs failing to meet the Menactra benchmark due to excessive Menveo purchases, but Mr. Grau's testimony states no such thing. Moreover, Professor Rubinfeld omits the portion of Mr. Grau's testimony where he acknowledges that he does not have much knowledge about when Sanofi withheld administrative fees from PBGs for failure to satisfy loyalty requirements.<sup>295</sup>

192. Professor Rubinfeld also claims that his Exhibit 17 shows twenty-three "examples of PBGs that missed their Menactra benchmark, but still received administrative fees on Menactra and the other Sanofi vaccines."<sup>296</sup> But the data shows that there are *not* examples of Sanofi paying administrative fees to PBGs that had switched to Menveo. Instead, the PBGs listed in Rubinfeld Exhibit 17 are predominantly ones that bought primarily Menactra but did not technically meet the 80% of prior year Menactra purchase benchmark because their overall MCV4 needs decreased significantly. This makes sense because Sanofi's PBG contracts explicitly acknowledge that Sanofi will take "market conditions" into account when evaluating whether the PBG has complied with what the Sanofi PBG contract itself calls a "market share measurement."<sup>297</sup>

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<sup>293</sup> Rubinfeld Report ¶180, citing Grau Dep. 35-36. In Part V.E.3 below, I present an especially egregious example of Mr. Grau repeating Sanofi counsel's litigation arguments in ways that contradict his pre-litigation statements.

<sup>294</sup> See *infra* note 309.

<sup>295</sup> Grau Dep. 40-42 ("Q: As we sit here today, you cannot identify a specific PBG that was paid its administrative fee by Sanofi Pasteur despite the fact that the PBG did not meet the benchmark requirements across the vaccines set forth in its contract with Sanofi Pasteur; correct? [arguments by counsel] A: So I've been party to discussions where we discussed the payment of fees. What I can say is that it's not my primary area of scope. That's someone else's responsibility. And I don't have specific recollection of which customers were paid where they did meet benchmarks, paid where they didn't meet the benchmark, or to your specific question, where they were not paid for not meeting the benchmark.").

<sup>296</sup> Rubinfeld Report ¶180.

<sup>297</sup> MacDonald Declaration Exhibit B (template Sanofi PBG contract with Bundle, which includes section 4.1.5 stating "Sanofi Pasteur Inc. will review Market Share variances from product benchmarks based on market conditions.")

193. For example, Rubinfeld Exhibit 17 lists the “National Discount Vaccine Alliance” PBG as one that “Missed their Menactra Benchmark and Still Earned Administrative Fees on Menactra and Other Sanofi Vaccines.” But the IMS DDD data shows that the members of this PBG purchased *100%* of their MCV4 from Sanofi during the relevant period.<sup>298</sup> It would make no sense for Sanofi to punish a PBG that actually achieved *perfect* compliance with the Menactra condition simply because its overall MCV4 demand decreased by more than 20% from the previous year. Similarly, Rubinfeld Exhibit 17 also lists “Richmond IPA Prac Loc” as a PBG that received administrative fees despite not technically meeting the percentage of prior year Menactra purchases benchmark, but the IMS DDD data shows that they too purchased *only* Menactra and no Menveo during the relevant period.<sup>299</sup> Showing that Sanofi paid administrative fees to PBGs that bought *only* Menactra and *no* Menveo does not support Professor Rubinfeld’s claim that Sanofi pays administrative fees even when PBGs buy significant amounts of Menveo.

194. Overall, the IMS DDD data indicates that, out of the PBGs listed in Rubinfeld Exhibit 17, 22% bought *only* Menactra and no Menveo, 63% had 90% Menactra shares or higher, 86% had 80% Menactra shares or higher, and the very lowest Menactra share was still 72%.<sup>300</sup> Table 5 below shows the Menactra shares during the period that was used to determine administrative fee eligibility for each PBG listed in Rubinfeld Exhibit 17.


















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<sup>298</sup> “MRebut21 Exhibit 17 Menactra Shares.xlsx”.

<sup>299</sup> “MRebut21 Exhibit 17 Menactra Shares.xlsx”.

<sup>300</sup> Rubinfeld Exhibit 17 lists 23 PBGs. One of them did not buy any MCV4 vaccines during the relevant period according to the IMS DDD data, meaning there are twenty-two for which we have IMS DDD data on their MCV4 share during the period use to determine administrative fee eligibility. Out of these 22, five had 100% Menactra shares, 14 had Menactra shares of 90% or higher, 19 had Menactra shares of 80% or higher, and the very lowest Menactra share was 72%. “MRebut21 Exhibit 17 Menactra Shares.xlsx”.



<b>Table 5: Menactra Shares of PBG Listed in Rubinfeld Exhibit 17 During Period Used to Determine Admin Fee Eligibility<sup>301</sup></b>				
<b>PBG</b>	<b>Fee Period Ending</b>	<b>Menactra Doses</b>	<b>Menveo Doses</b>	<b>Menactra Share</b>
Forest Hills Ped Assoc MBR	12/31/2011	2,110	-	100%
Nat'l Discount Vacc Allnc PRAC	12/31/2011	1,005	-	100%
Children's Nat Hlth Net Prac L	6/30/2011	2,005	-	100%
Richmond IPA Prac Loc	6/30/2011	445	-	100%
Methodist Medical CTR of IL PR	6/30/2011	470	-	100%
Delsar Practice Solutions MBR	6/30/2011	1,015		99%
Chil Hosp Med Prac Corp MBR	6/30/2011	1,890		95%
Jefferson Physician Group	6/30/2011	8,025		94%
Independent Peds of Austin MBR	6/30/2011	1,585		93%
Medical Management Solutions	6/30/2011	2,467		93%
CASA Physicians Alliance	6/30/2011	66,365		91%
Continuum Hlth Alliance MBR	6/30/2011	6,013		91%
Integrated Phys Solutions MBR	9/30/2010	11,958		90%
Physicians Resource Network	6/30/2011	49,475		90%
Pediatric Federation	3/31/2011	82,025		85%
PRACTICE PLUS MBR	6/30/2011	7,814		85%
TCH Ventures, Inc. MBR	9/30/2011	9,124		83%
Children's Nat Hlth Net MBR	6/30/2011	27,554		82%
National Phys Care MBR	6/30/2011	33,806		80%
Bright Health Physicians MBR	9/30/2010	290		79%
Physicians' Alliance	6/30/2011	32,427		79%
National Phys Care Prac Loc	6/30/2011	590		72%
Children's Hlthcare of OC Prac	9/30/2010	-	-	

195. In sum, the evidence indicates that: (1) Sanofi conditioned administrative fees on Menactra loyalty in a way that caused PBGs to impose bundling conditions on members; (2) Sanofi warned PBGs that they would lose these administrative fees if their members bought too much Menveo; (3) PBGs were highly compliant with the Menactra loyalty requirement; and (4) Sanofi did withhold administrative fees when PBGs' members bought too much Menveo.

<sup>301</sup> "MRebut21 Exhibit 17 Menactra Shares.xlsx".

*7. PBGs and their Members Had High Compliance Levels*

196. **a. Data Shows that Compliance with Sanofi's PBG Agreements Was Very High.** I showed in my opening merits report that compliance with Sanofi's Bundle is so high that it is economically equivalent to tying.<sup>302</sup> Professor Rubinfeld argues that compliance rates with Sanofi's PBG agreements were actually "low," but his conclusion is based on an incorrect definition of "compliance."

197. Professor Rubinfeld argues that compliance with Sanofi PBG contracts was low based on the premise that some restrained customers bought some Menveo.<sup>303</sup> But that fails to show any noncompliance because Sanofi's PBG contracts do not literally require customers to buy 100% of their MCV4 from Sanofi. Instead, Sanofi's PBG requirements defines its "Market share measurement" requirement for Menactra as PBGs' members' collectively buying at least 80% as much Menactra as they did in the prior year.<sup>304</sup>

198. Professor Rubinfeld also argues that compliance with Sanofi's PBG agreements is low based on the premise that 15% of restrained PBG members purchased at least 20% of their MCV4 needs from Novartis.<sup>305</sup> Even these noncompliance rates are low. In any event, they are inflated because Professor Rubinfeld's methodology makes two errors.

199. First, Professor Rubinfeld errs by counting customers as noncompliant even if they meet the literal Menactra loyalty requirement in their contracts.<sup>306</sup> For example, Sanofi's PBG agreements require the members to collectively purchase at least 80% as much Menactra as they did the previous year.<sup>307</sup> Thus, a customer who in 2009 bought 100 doses of Menactra, and in 2010 bough 90 Menactra doses and 30 Menveo doses would be compliant with this requirement (because its 2010 Menactra purchases are greater than 80% of its 2009 Menactra purchases), but

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<sup>302</sup> Elhauge Merits Report ¶¶194-196.

<sup>303</sup> Rubinfeld Report ¶176.

<sup>304</sup> Elhauge Merits Report ¶94.

<sup>305</sup> Rubinfeld Report ¶176. He asserts that 17.9% of restrained PBG members bought some Menveo and that 85% of those customers bought Menveo for more than 20% of their MCV4 purchases. This means  $17.9\% * 85\% = 15\%$  bought Menveo for more than 20% of their MCV4 purchases, according to Rubinfeld.

<sup>306</sup> See "restrained\_customers\_purchasing\_menveo.do" program from Rubinfeld backup.

<sup>307</sup> Elhauge Merits Report ¶94.

Professor Rubinfeld would mark them as noncompliant because their current Menactra share was less than 80%.

200. Correcting just this first error produces a much lower noncompliance rate. To make this correction, I use Professor Rubinfeld's method but switch his classification of a customer from noncompliant to compliant if the data indicated that the customer complied with the technical Menactra loyalty requirement. Making this correction to track actual compliance means that his own method would calculate a compliance rate of 90% among restrained PBG members.<sup>308</sup> Further, making the same correction means that Professor Rubinfeld's method would calculate that 99% of PBGs are compliant.<sup>309</sup> Thus, when corrected to track actual compliance, even his method indicates that Sanofi PBGs were extraordinarily compliant with the Menactra loyalty requirement. This is consistent with the evidence that Sanofi and the PBGs expended significant efforts monitoring member compliance, threatening noncompliant members with termination in order to make them compliant again, and terminating noncompliant members who refused to return to compliance.<sup>310</sup> It is also consistent with the contemporaneous internal documents of Sanofi and Novartis, making clear that each company saw the Bundle as being effective in restraining competition from Menveo.<sup>311</sup>

201. Second, Professor Rubinfeld errs by treating *Menactra* purchases as "noncompliant" when they are made by noncompliant buyers, even though those *Menactra* purchases are not the purchases that violate the loyalty condition. As a result, his method leads to a much higher noncompliance rate than the correct standard method for assessing whether the noncompliance rate with bundles makes them economically equivalent to ties. Under the correct standard method, the noncompliance rate is measured as (noncompliant Menveo) / (noncompliant Menveo + compliant Menactra), which produces a correct noncompliance figure of

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<sup>308</sup> "MRebut176 PBG 4P Cur Share Compliance dose weighted.csv". Under this calculation, a customer is considered "compliant" if they either meet Professor Rubinfeld's definition of compliance (greater than 90% Menactra share) or meet the technical requirement in the Sanofi-PBG contract (current Menactra purchases are greater than 80% of prior year Menactra purchases). I have also weighted by doses, whereas Rubinfeld weights all customers equally, although that does not make a significant difference in the ultimate compliance percentages.

<sup>309</sup> "MRebut176 PBG Cur Share Compliance dose weighted (by buying group).csv".

<sup>310</sup> *Supra* Section A.1.

<sup>311</sup> Elhauge Merits Report Part V.E.1.



5.5% at the customer level.<sup>312</sup> Under his incorrect method, the noncompliance rate is (noncompliant Menactra + noncompliant Menveo) / (all Menactra + all Menveo),<sup>313</sup> and as just noted comes to 10% for customers even if one corrects it to track actual compliance.

202. **b. Rubinfeld Anecdotes About Noncompliance.** Professor Rubinfeld also makes the puzzling claim that two anecdotes about class members allegedly being noncompliant refute my systematic analysis showing widespread compliance.<sup>314</sup> These two class members constitute only 0.01% of the 21,000 Class members in this case.<sup>315</sup> Observing that 0.01% of the Class was noncompliant at some point in time does not refute systematic analysis of the data showing that the market compliance levels were extraordinarily high. The market compliance calculations use 100% of the available data, as compared to the 0.01% of data Professor Rubinfeld's anecdotes constitute. Nor can these anecdotes about 0.01% of the Class refute my analysis showing that compliance with Sanofi's Bundle was so high that it was economically equivalent to tying.<sup>316</sup>

203. Professor Rubinfeld also misrepresents the two anecdotes he discusses by ignoring the evidence that contradicts his argument. For example, Professor Rubinfeld argues that an anecdote about plaintiff Dr. Castro contradicts my analysis.<sup>317</sup> In reality, the evidence shows that: (a) Dr. Castro was on a Sanofi PBG when Menveo entered, but she did not realize at the time that her commitment agreement required her to buy Menactra (or any other Sanofi vaccine) because she was particularly busy the day the membership agreement was brought to her and signed it without looking at it,<sup>318</sup> (b) Dr. Castro ordered some Menveo in

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<sup>312</sup> See Elhauge Merits Report Figure 14; *infra* Part V.C.3.

<sup>313</sup> See "restrained\_customers\_purchasing\_menveo.do" program from Rubinfeld backup.

<sup>314</sup> Rubinfeld Report ¶178.

<sup>315</sup> Elhauge Merits Report ¶369.

<sup>316</sup> Elhauge Merits Report Part V.E.2.

<sup>317</sup> Rubinfeld Report ¶178.

<sup>318</sup> Castro Dep. 42-43 ("Q: Well, you understood when you signed on to Physicians' Alliance that you were required to purchase all three of those products from Sanofi, not – right? That was your understanding? A: Um, no, my understanding was that I needed to be in a purchase buying group in order to be able to obtain Sanofi vaccines, that I would have to sign up with this particular PBG since Atlantic was not being very cooperative with the process."); *id.* at 43-44 ("Q: Did you understand when you signed up for Physicians' Alliance that you were required to meet certain purchasing benchmarks, regardless of how those benchmarks were defined? A: No. The contract was brought to me in the middle of the day. I was in between seeing patients. I was called out of a room. This is where you need to sign. Sign, sign here, sign

March 2010, right as Menveo entered the market<sup>319</sup> because Menveo was cheaper than Menactra;<sup>320</sup> (c) after Dr. Castro bought Menveo, her PBG sent her a letter in July 2010 reminding her that she had committed to buying Menactra instead of Menveo and warning that she would be terminated if she continued to purchase Menveo;<sup>321</sup> (d) for the next 12 months after the letter threatening termination for buying Menveo, Dr. Castro did not buy any MCV4 vaccines, but during this period still purchased some Sanofi Pediatric vaccines under her Sanofi PBG agreement;<sup>322</sup> (e) in July 2011 Castro entered into a GSK PBG agreement;<sup>323</sup> (f) Dr. Castro has not purchased any Sanofi vaccines since July 2011;<sup>324</sup> and (g) in October 2011, Dr. Castro bought an MCV4 vaccine (Menveo) for the first time ever since March 2010.<sup>325</sup> Dr. Castro testified that she had to incur significant costs when switching from Sanofi Pediatric vaccines to GSK Pediatric vaccines, such as: (a) training her staff on which of the new GSK vaccines to use; (b) determining how to handle children that had their vaccination schedule with Sanofi vaccines and would have

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here, sign here. Okay. There you go. Okay. Good-bye. Good-bye. That's it. . . . I didn't understand that there were minimums that were going to be somehow monitored."); *id.* at 77 ("Q: So as of the time that you purchased Menveo, you weren't even aware that you were under any obligation to purchase Sanofi vaccines under the Physicians' Alliance contract? A: That would be correct.").

<sup>319</sup> CASTRO00000620.

<sup>320</sup> Castro Dep. 79.

<sup>321</sup> CASTR00000014 (July 13, 2010 email sent from Physicians' Alliance to Castro, titled "Menveo and Sanofi Pasteur." Physicians' Alliance tells Dr. Castro "Sales records indicate that your practice is purchasing Novartis's new meningitis vaccine, Menveo. We are proud to have Menveo and Novartis as part of our vaccines portfolio. However, our records also indicate that your practice is linked to our Sanofi Pasteur agreement. Under the terms of the Sanofi Pasteur agreement and the Letter of Intent signed by all practices before accessing the agreement, practices agree to purchase Sanofi's IPOL, DTAP, HIB, TDAP and Meningitis vaccines at benchmark levels established by Sanofi based on prior year's purchases. . . . By purchasing Menveo your practice will not be able to meet Sanofi's terms for the Meningitis vaccine (Menactra). If your practice does not meet the benchmarks for all Sanofi products listed above, your practice runs the risk of being unlinked from our Sanofi agreement . . . not just Menactra pricing. You would be unlinked from the preferred pricing for Sanofi vaccines only. . . . No such unlinking would occur without prior notice(s) to you and an opportunity to respond.").

<sup>322</sup> CASTRO0000620 (Castro purchase history from Novartis); CASTRO0003088 (Castro purchase history from Sanofi).

<sup>323</sup> PAA00000468 (July 1, 2011 email confirming that Castro switched from a Sanofi PBG agreement to a GSK PBG agreement).

<sup>324</sup> CASTRO0003088 (Castro purchase history from Sanofi).

<sup>325</sup> CASTRO0000620 (Castro purchase history from Novartis); CASTRO0003088 (Castro purchase history from Sanofi).

to finish them with non-Sanofi vaccines.<sup>326</sup> She stated that this process took approximately eight months and was “nothing less than draining.”<sup>327</sup> In sum, this evidence indicates that Dr. Castro did not realize she was not allowed to buy Menveo (by happenstance of being shown the Sanofi PBG agreement on a particularly busy day), bought Menveo because it was cheaper than Menactra, was threatened with termination for doing so, and had to incur the “draining” costs of switching to GSK and Menveo upon realizing what her Sanofi PBG agreement required. This anecdote thus actually supports my points that: (1) Menveo was generally cheaper than Menactra, rather than being at “parity;” (2) Sanofi PBGs enforced compliance by threatening members who had bought Menveo with termination; and (3) even customers that switch to GSK Pediatric vaccines must pay an implicit disloyalty penalty in the form of having to use less-medically-preferred vaccines and/or incurring administrative costs in switching from the Sanofi vaccine schedule to the GSK vaccine schedule. Moreover, Dr. Castro testified in her deposition that she knew of doctors “that have purchased Sanofi’s Menactra when they would have preferred to purchase Menveo and they only purchased Menactra because of . . . the requirements they have under their physician buying group contracts.”<sup>328</sup> Professor Rubinfeld cites the Castro anecdote for the proposition that Sanofi PBGs did not enforce compliance,<sup>329</sup> but this anecdote actually shows a Sanofi PBG explicitly threatening a member with termination for buying Menveo, which as I explained above was Sanofi and its PBGs’ preferred method of enforcing compliance because it often caused members to comply. It also shows that after receiving the threat, the member did not buy Menveo until after it switched to a GSK contract.

204. Professor Rubinfeld’s other anecdote of noncompliance is plaintiff Dr. Marquez.<sup>330</sup> Dr. Marquez was on a Sanofi PBG agreement when Menveo entered, and Professor Rubinfeld claims that Dr. Marquez bought Menveo without being punished.<sup>331</sup> In reality: (1) both Sanofi and Dr. Marquez’s PBG threatened her with termination after she bought Menveo;<sup>332</sup> and (2) Dr. Marquez switched back

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<sup>326</sup> Castro Dep. 238-239.

<sup>327</sup> *Id.*

<sup>328</sup> Castro Dep. 206.

<sup>329</sup> Rubinfeld Report ¶178.

<sup>330</sup> Rubinfeld Report ¶178.

<sup>331</sup> Rubinfeld Report ¶178.

<sup>332</sup> Marquez Dep. 20-21 (“A: I remember we were with Sanofi for when the Menveo came out, I said, you know, I wanted to try this other – both wonderful products . . . So we said, okay, let me – and I order just maybe for a couple of months the Menveo. And when I ordered

to buying Menactra because of this threat of termination.<sup>333</sup> The Marquez anecdote thus actually directly supports the other evidence showing that Sanofi and its PBGs would threaten members with termination if they bought Menveo, and that these threats of termination often made members switch back to buying Menactra.

#### ***B. 4-Product Health Systems***

205. I showed in my opening merits report that Sanofi's 4P system agreements also imposed the Bundle on customers. Hospital systems can sign up for Sanofi's "4-Product" health system agreement only if they commit to being loyal to four Sanofi "Product Categories": (1) MCV4; (2) Tdap and Td; (3) Pediatric (DTaP, Polio, and HIB); and (4) Seasonal Flu.<sup>334</sup> The Menactra loyalty requirement for 4P systems was that their current purchases of Menactra must be greater than or equal to 90% of their prior year MCV4 (Menactra plus Menveo) purchases.<sup>335</sup> A hospital system that is not willing to make these commitments, or has its 4P system contract terminated for violating these commitments, would have to purchase under Sanofi's disloyal contract programs (GPO Access and Non-Contract), which have 46-57% higher contract prices on Sanofi's Pediatric

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the Menveo we used it, same good results. What happened was that then the rep comes – our rep comes in, who I like very much, and said, you know, Doctor, you have to realize when you buy vaccines, if you don't buy other vaccines the prices are going to change. And the percent, there's bundling that if you buy – you know, it's sort of like the more you buy, the better price you will get. And not the more, but I mean the more types of different vaccines. We're calling it's a bundle and if you buy different products, DPT and whatever, the polio and also buy our meningitis vaccine, you're going to get a better price. So I stopped buying – I really stopped buying the other vaccine."); Marquez Dep. 118-119 ("A: I do know that sometime in 2011 I did buy Menveo. Like I mentioned to you at the beginning of the deposition, I did buy Menveo for two or three months. . . . I think it was a decision based on finances. And at one point I thought when Phase III studies came out from Menveo that it was an excellent, you know, or they claimed that they have a little bit better sera type, better antibody defense, et cetera. And again, the rep came from, whoever does the Menveo, the company, and she explained it to me. And I ordered for a few months. But then I realized that all my other vaccines were getting to be more expensive and I received a letter in the mail that I mentioned to you earlier in this deposition, I said to the girls in the office, like, I guess we're going to stick to the whole battery of vaccines from the other company because we cannot afford to lose money on vaccines, or we would be out of business.").

<sup>333</sup> *Id.*; "MRebut4015 Marquez IMS DDD.csv" (IMS DDD data showing that Marquez switched back to buying Menactra).

<sup>334</sup> Elhauge Merits Report ¶115.

<sup>335</sup> Elhauge Merits Report Table 5.

vaccines than Sanofi's 4P system contract.<sup>336</sup> Thus, Sanofi's 4P system contracts impose the Bundle on health systems by requiring them to pay 46-57% higher contract prices on Sanofi's Pediatric vaccines if they either are not willing to commit to Menactra loyalty or are terminated from their 4P agreement for violating the Menactra loyalty requirement. Additionally, 4P system agreements provided larger rebates on Sanofi's Pediatric vaccines than Sanofi's disloyal contract programs (GPO Access and No-Contract), and customers would not qualify for those rebates if they were not willing to commit to Menactra loyalty.<sup>337</sup>

206. Professor Rubinfeld argues incorrectly that Sanofi's 4P system agreements were not bundled and argues in the alternative (also incorrectly) that they do not restrain customers' purchases of Menveo.<sup>338</sup> I show below that he is wrong on both counts.

### *1. 4P System Contract Prices Were Bundled*

207. Professor Rubinfeld's argument that Sanofi's 4P system agreements are not bundled depends on ignoring the evidence that: (a) Sanofi purposefully designed its 4P system agreements to be bundled in order to protect Menactra's share from Menveo competition; (b) the explicit language of the 4P system agreements makes loyalty to Menactra a condition of the agreement (and thus also the 4P system contract prices and rebates); (c) customers could not enter into a health system agreement that would provide loyal prices on Sanofi pediatric vaccines without requiring Menactra loyalty; (d) Sanofi repeatedly acknowledged internally that its 4P system agreements were bundled; (e) Sanofi repeatedly reminded 4P system customers that their contracts were bundled; (f) Novartis acknowledged that Sanofi's 4P system agreements were bundled; (g) Sanofi's 4P system agreements did in fact significantly restrain Menveo sales, which would be impossible if they imposed only single-product disloyalty penalties on Menactra.

208. Professor Rubinfeld claims the evidence I have identified and explained in my opening report is insufficient. It was not. Nevertheless, I will add more here by way of rebuttal given that the record is replete with support for my opinions in this regard. Before diving into the mountains of evidence, it is worth noting that Professor Rubinfeld does not cite a *single* Sanofi document stating that

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<sup>336</sup> Elhauge Merits Report Table 6.

<sup>337</sup> *Infra* section 2.

<sup>338</sup> Rubinfeld Report Part V.B.



customers can sign up for 4P system agreements without committing to Menactra loyalty. Professor Rubinfeld's claim that 4P system agreements are not bundled is decidedly inconsistent with the abundant Sanofi contemporaneous business documents that repeatedly states that they are bundled.

209. **a. Sanofi Purposefully Designed 4P System Contracts to Be Bundled In Order to Protect Menactra's Share from Menveo Competition.** Sanofi contemporaneous internal business records show that it purposefully designed its 4P system agreements to bundle Menactra in order to protect its share from Menveo competition.

210. For example, an internal Sanofi presentation from 2009 acknowledged that there was "significant competition on the horizon" for Menactra because Menveo was expected to enter in the first quarter of 2010 (as it actually did).<sup>339</sup> This presentation acknowledges that, before Sanofi added the Bundle, two of Sanofi's "primary contract limitations" were that it had "no performance expectation for Menactra" and that "Product discounts on Pediatrics . . . [were] not connected to . . . Menactra customer behavior."<sup>340</sup> Sanofi therefore concluded that the "priority must be to hold [Menactra's] share – we own 100% now" and that "Full-line offering/bundling likely a good way to leverage our strengths and help to offset competitive pressure" from Menveo.<sup>341</sup> In this same presentation, Sanofi succinctly stated its plan to "offset competitive pressure" from Menveo at health systems: "Bundle all 4 franchises."<sup>342</sup>

211. And that is not some rogue presentation—Sanofi *repeatedly* stated that it was purposefully designing its 4P system agreements to be bundled. For

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<sup>339</sup> SP 01876411 (2009 internal Sanofi slideshow titled "Contracting Strategy: Staying Ahead of the Competition"); *id.* at SP 01876427 (slide titled "Menactra Contracting Objectives to Meet Competitive Needs in 2009." It notes "significant competition on the horizon – Novartis adolescent quad expected Q1, 2010").

<sup>340</sup> SP 01876411 at SP 01876417 (slide titled "Primary contracting limitations." Two are "No performance expectation for Menactra" and "Product discounts on Pediatrics, Adacel, and Menactra are not connected to Fluzone, Adacel, or Menactra customer behavior besides overall volumes.").

<sup>341</sup> SP 01876411 at SP 01876427 (slide titled "Menactra Contracting Objectives to Meet Competitive Needs in 2009." It explicitly states "Priority must be to hold share – we own 100% now" and "Full-line offering/bundling likely a good way to leverage our strengths and help to offset competitive pressure.").

<sup>342</sup> SP 01876411 at SP 01876434 (slide titled "IHN / Health System Contracting Solution". The first bullet is "Bundle all 4 franchises").

example, an internal document from late 2008 describes Sanofi's plans for its 4-product health system agreements that would be rolled out in mid-2009.<sup>343</sup> It explains that if a 4P system did not correct any noncompliance within 3 months, it would result in "price reverting to the next franchise bundle or access pricing."<sup>344</sup> This presentation also refers to what would become Sanofi's 4P Health System agreements as the "Four Product Bundle."<sup>345</sup> Although Sanofi's 4P system agreements did not end up with the exact same terms as are described in this late-2008 planning document, this document nonetheless confirms that Sanofi executives were explicitly planning to make its 4P system agreements bundled.<sup>346</sup>

212. Similarly, another Sanofi presentation from the time period when Sanofi was pinning down the exact terms of its 4P system agreements reminds Sanofi employees "Why We Revisited Our 2008 Contract Strategy," lamenting that Sanofi's old contract strategy was "not structured to reward . . . Menactra vaccine performance" and that the "value of market share loyalty across all four franchises was not recognized."<sup>347</sup> The presentation then explained that Sanofi's new 4P health system agreement would instead "Provide[] discounts for committing to a four product bundle" that included performance requirements for Menactra.<sup>348</sup>

213. Indeed, Sanofi's Director of Pricing and Pharmacoeconomics, Eric Grau, explained in a November 2009 presentation titled "Pricing & Contract Strategy: Maintaining Our Dominant Market Share" that Sanofi should continue to follow a strategy of "Increas[ing] the customer costs of switching by increasing the discount dollars associated with maintaining a loyal product selection" and noted that this could be accomplished by simply "increasing list" (the disloyal price)

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<sup>343</sup> SP 01913125 at SP 01913138.

<sup>344</sup> SP 01913125 at SP 01913138.

<sup>345</sup> SP 01913125 at SP 01913136.

<sup>346</sup> This document was written by Sanofi's "Deputy Director for Pricing" in the United States at the time, Pam Hasara. SP 01913125.

<sup>347</sup> SP 00605287 at SP 00605291 (slide titled "Why We Revisited our 2008 Contracting Strategy," with a bullet stating "Value of market share loyalty across all four franchises was not fully recognized").

<sup>348</sup> SP 00605287 at SP 00605292 ("Provides discounts for committing to a four product bundle."); *id.* at SP 00605294 (proposing a "performance measure" for Menactra under this four product bundle that was "95% + of prior year category sales," which is very similar to the actual "90% + of prior year category sales" Menactra performance requirement Sanofi ultimately implemented in its 4P system agreements).

without actually reducing contract prices.<sup>349</sup> Professor Rubinfeld cites no evidence that explains why Sanofi would purportedly abandon its long-planned strategy of using bundling as a means of “increasing the customer cost of switching” to rivals when it came to health systems.

214. These internal Sanofi documents show that Sanofi *purposefully* designed its 4P system agreements to be bundled specifically to reduce competition from Menveo. And Professor Rubinfeld has not cited any internal Sanofi documents indicating that Sanofi did not mean to make its 4P system agreements bundled. As I show in the next section, the ultimate 4P system contract language that Sanofi settled upon achieved Sanofi’s long-standing goal of making its 4P agreements bundled.

215. **b. 4P System Contract Language Explicitly Makes The Menactra Loyalty Commitment a Condition of the Contract.** As I explained in my opening merits report, the explicit contract language of Sanofi’s 4P agreements makes the commitments to Menactra loyalty a condition of the contract.<sup>350</sup> For example, even the 4P system agreements that Professor Rubinfeld cites contain the following clause that customers must agree to in order to enter into the Sanofi 4P agreements:

“According to its immunization protocol, [Customer] (for itself and, as applicable, its participating Practice Locations) selects (the ‘Products’) and commits to the Product Category Offer below upon the terms and conditions set forth below: 4 Product Category Offer below,”<sup>351</sup>

Immediately below this clause is a Table titled “4 Product Category Offer” that includes “Market Share Measurements” for the four product categories the customer must commit to in order to enter into this agreement.<sup>352</sup> For the MCV4 market (called “Meninge” in these contracts) the “Market Share Measurement” is “≥90% of prior 12 months Category Sales,” with “Category Sales” defined to include both Menactra and Menveo.<sup>353</sup>

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<sup>349</sup> SP 00496642 at SP 00496647.

<sup>350</sup> Elhauge Merits Report ¶121.

<sup>351</sup> SP 01824693, cited by Rubinfeld Report ¶188. This same language is in SP 01132251, cited by Rubinfeld Report at n. 290.

<sup>352</sup> *Id.*

<sup>353</sup> *Id.*

216. This explicit contract language means that a customer cannot sign up for a 4P system agreement (and obtain the non-penalty 4P system contract prices for Sanofi Pediatric vaccines) unless the customer commits to Menactra loyalty. This imposes the Bundle by making eligibility for 4P system contract prices on Sanofi Pediatric vaccines contingent on customers committing to Menactra loyalty, which the previous section showed is precisely what Sanofi wanted to do with its 4P system agreements in order to protect Menactra from Menveo competition. Further, the following sections confirm that Sanofi contemporaneously recognized that its 4P agreements were bundled and that Sanofi reminded 4P system customers that their contracts were bundled.

217. Professor Rubinfeld argues that this contract language instead means only that “the consequence to the customer of not achieving the benchmark in a vaccine category [such as MCV4] would be to earn a 0% rebate for that category – not termination.”<sup>354</sup> Professor Rubinfeld’s claim appears to be based on the unsupported assumption that the 0% Menactra rebate penalty is mutually exclusive with the termination penalty. There is no language in Sanofi’s 4P agreements that neuters the explicit contract language I cited above making clear that the commitment to loyalty on all four product categories was a condition of the entire agreement. Thus, if a customer was not willing to make a Menactra loyalty commitment, it could not even enter into the 4P system agreement to begin with. And if a customer entered into a 4P system agreement but violated its Menactra loyalty agreement, Sanofi could *both*: (a) withhold rebates on the customers’ Menactra purchases, *and* (b) terminate the entire agreement because the customer had violated a condition of that agreement.

218. Indeed, Sanofi employees have explicitly rejected Professor Rubinfeld’s erroneous interpretation of Sanofi’s 4P System agreements in their contemporaneous non-litigation business statements. For example, Novartis salespeople sometimes attempted to persuade Sanofi 4P system customers that the only consequence of switching to Menveo would be losing rebates on Menactra, but Sanofi salespeople would correct this misinterpretation of Sanofi’s 4P contracts, explaining to customers that “the use of Menveo is not permitted on our contract strategy.”<sup>355</sup> Other examples are cited below.<sup>356</sup>

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<sup>354</sup> Rubinfeld Report ¶188.

<sup>355</sup> SP 00670993 at SP 00670994 (February 25, 2011 internal Sanofi document stating “Novartis reps have been trying a new ‘angle’ in their discussions with customers where they inform accounts that Menactra can be ‘carved’ out of the contract and they can use Menveo now.

219. Professor Rubinfeld does not cite a single Sanofi document that supports his interpretation that Sanofi could *not* terminate the 4P system agreement for noncompliance. He claims that the deposition testimony of a Sanofi employee (Laurie McDonald) supports his interpretation, but that deposition actually just confirms that the loss of the Menactra rebate is *one* of the potential penalties for noncompliance, not that it is the only possible penalty.<sup>357</sup> Professor Rubinfeld also claims that Sanofi has sometimes “awarded rebates to 4-P customers in some categories but not others when 4-P customers did not meet performance metrics in all four categories.”<sup>358</sup> But that merely confirms that *one* of the potential penalties for violating a 4P system commitment for a particular product category is the loss of rebates on that product category, which in no way disproves the mountains of evidence, cited below,<sup>359</sup> showing that another potential penalty was termination of the entire agreement resulting in higher prices for Sanofi’s Pediatric vaccines. Nor does it contradict the mountains of evidence, cited below,<sup>360</sup> showing that Sanofi repeatedly reminded 4P system customers of those bundled penalties to deter them from buying Menveo.

220. While Professor Rubinfeld has no support for his interpretation of Sanofi’s 4P system contract language, in contrast, I showed in my opening merits report that contemporaneous Sanofi statements confirm my interpretation that Sanofi *could* terminate its 4P agreements for noncompliance.<sup>361</sup> Below, by way of rebuttal, I show even more examples of Sanofi confirming my interpretation in the sections that follow.

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What the Account Manager from Novartis (former sp account manager) is referencing is the 4 HS contract where the rebate structure shows that if a contract owner does not achieve >90% of benchmark, they would still receive payment on other categories (peds, boosters). The RAM was able to explain that this is not intended to have 0% compliance either and that the use of Menveo is not permitted on our contract strategy.”).

<sup>356</sup> See *infra* Part II.B.1.e.

<sup>357</sup> Rubinfeld Report ¶189, citing McDonald Deposition, pp. 146-147. (“If the health system, as your example, has 91 percent of prior twelve-month sales, if that’s their achievement, they would earn their 2 percent on the boosters...and if they did not perform to 90 percent of category sales in the pediatric, they would not earn the 2 percent rebate...on the pediatric products.”).

<sup>358</sup> Rubinfeld Report ¶188.

<sup>359</sup> See *infra* at Part II.B.1.d.

<sup>360</sup> See *infra* Part II.B.1.e.

<sup>361</sup> Elhauge Merits Report ¶121, citing SP 00359503; SP 00481099 at SP 00481100.



221. **c. Unavailability of a “3 Product” Health System Agreement That Did Not Require Menactra Loyalty Confirms that Menactra Loyalty Was a Condition of the 4P System Agreement.** The fact that Sanofi’s 4P System agreements were bundled is also confirmed by the unavailability of a Sanofi Health System agreement that would provide non-penalty prices on Sanofi Pediatric vaccines without requiring customers to commit to Menactra loyalty.<sup>362</sup> As I explained in my opening merits report, the only “3-product” health system agreement that Sanofi publicized or generally offered was its “3-product No Pediatrics” agreement, which required loyalty to Menactra but did not provide loyalty pricing on Sanofi Pediatrics vaccines.<sup>363</sup> For example, all of the System Letters of Commitment sent to Health Systems under GPOs offered only two Health System agreements: the 4-Product agreement and the 3-Product No Pediatrics agreement.<sup>364</sup> As another example, Sanofi told a customer on a 4-Product system agreement that it would “move to Novation access pricing” (GPO Access pricing) if it switched to Menveo, rather than telling the customer that it could remain on its 4P system agreement or that it could switch to a 3-product “No Menactra” agreement that did not require Menactra loyalty.<sup>365</sup> Further, deposition testimony from Sanofi’s own employees confirms that the “3-product” option was generally offered only to customers who purchased no Sanofi Pediatric vaccines.<sup>366</sup>

222. My opening merits report also cited Sanofi documents confirming that the lone 3-Product No Menactra contract it offered (to MountainView Medical Group) was a one-time contract and was Sanofi’s “only contract” under this strategy.”<sup>367</sup> This single exception thus amounts to a special form of management exception that was only given once to one customer, and could not provide any realistic hope to medical providers that they could avoid bundled penalties on pediatrics for being disloyal on Menactra.

223. Professor Rubinfeld does not dispute any of this. Instead, he merely identifies the only 3-Product “No Menactra” contract Sanofi ever offered (to MountainView) without disputing any of my analysis showing that 3-Product No Menactra contracts were neither publicized nor generally offered.

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<sup>362</sup> Elhauge Merits Report ¶123.

<sup>363</sup> Elhauge Merits Report ¶123.

<sup>364</sup> Elhauge Merits Report ¶123, n. 180.

<sup>365</sup> Elhauge Merits Report ¶123, citing SP 00481099 at SP 00481100.

<sup>366</sup> Elhauge Merits Report ¶123, citing Sawyer Deposition at 67.

<sup>367</sup> Elhauge Merits Report ¶123, citing SP 00635900.

224. The fact that Sanofi presented systems only two options (3-Product No Pediatric or 4-Product) painted a clear picture to systems: if they violated the Pediatric loyalty requirement, they would move to a 3-Product No Pediatric contract, but if they violated the Menactra loyalty requirement, there was no 3-Product No Menactra contract, so they would have to switch to the disloyal programs (GPO Access or Non-Contract) and thereby pay much higher prices on Sanofi's Pediatric Vaccines. This conclusion is reflected in Sanofi's contemporaneous internal business records, explaining that if loyal customers "are not performing in the Ped[iatric] Products [category] they fall to 3 product level pricing. If they are not performing in the other vaccine categories – they could fall to the GPO Access pricing."<sup>368</sup>

225. Indeed, if Sanofi's 4-Product system agreement were not bundled, then Sanofi's 3-Product system agreement would have no reason to exist. If Sanofi's 4-Product system agreements were not bundled, then systems that were not loyal to Sanofi Pediatric vaccines could simply sign up for the 4-Product system agreements, receive lower prices than they would under the Sanofi 3-Product "No Pediatric" agreement for Sanofi Pediatric vaccines and Menactra,<sup>369</sup> and merely fail to qualify for the 4P rebate on Sanofi Pediatric vaccines that is not even available under the 3-Product No Pediatric agreement.

226. **d. Sanofi Recognized Internally That Sanofi Could Raise 4P System Customer Pediatric Prices If the 4P System Violated Its Menactra Loyalty Commitment.** In my opening merits report I cited an internal Sanofi document confirming my interpretation that Sanofi can terminate the 4P agreement for violating the Menactra loyalty condition, which would cause the system to pay disloyal prices for Sanofi's Pediatric vaccines under its GPO Access or Non-Contract programs.<sup>370</sup> In this document, Sanofi's "Deputy Director for Contract

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<sup>368</sup> Elhauge Merits Report ¶123, citing SP 00359503.

<sup>369</sup> For example, in April 2010 the contract price for Menactra under Sanofi's 4-Product system agreement was \$92.88, where it was \$94.84 under Sanofi's 3-Product No Pediatric system agreement. For Pentacel, the 4P system contract price was \$49.10 while the 3-Product No Pediatric contract price was \$71.58. "172 List and Contract Prices by Contract Type.xls". See also SP 01901456 at SP 01901463-64 (Sanofi document showing difference between 4P contract and 3P No pediatric contract available. 3P No Pediatric has higher Menactra and Adacel prices than 4P).

<sup>370</sup> Elhauge Merits Report ¶123, citing SP 00359503.

Administration”<sup>371</sup> describes the consequences of a customer violating its 4P system loyalty commitments:

“If the customer is not achieving performance, we can change the pricing.

Q) Where do they go if they are not performing?

A) If they are not performing in the Ped Products they fall to 3 product level pricing. If they are not performing in the other vaccine categories – they could fall to the GPO Access pricing. If they are not on a GPO, they fall to list pricing.”<sup>372</sup>

227. This full quote makes clear that Sanofi’s “Deputy Director for Contract Administration,” the most senior employee in Sanofi’s “Contract Administration” division,<sup>373</sup> agrees that a 4P system customer’s Pediatric prices will increase to disloyal prices (either GPO Access or List) if they are “not performing” on their Menactra loyalty commitment. Professor Rubinfeld focuses on the word “could” in the sentence “they could fall to GPO Access pricing” to speculate that it wouldn’t necessarily happen.<sup>374</sup> But the very next sentence in the quote (“if they are not on a GPO, they fall to list pricing”) makes clear that the only question is whether a customer that violated the Menactra loyalty commitment would fall to GPO Access pricing instead of List pricing, which is irrelevant here because both GPO Access pricing and List pricing are both 46-57% higher than 4P system contract pricing for Sanofi Pediatric vaccines.<sup>375</sup> Further, this document would still support my point that the 4P system contract imposes the Bundle even if one accepted Professor Rubinfeld’s interpretation that Sanofi *may* (but won’t necessarily) terminate the customer’s 4P system agreement for violating the Menactra loyalty commitment. Sanofi does not have to actually terminate any 4P systems for buying Menactra in order to impose the Bundle. Instead, Sanofi need only make 4P systems believe that they may have to pay higher prices on Sanofi Pediatric vaccines if they buy too much Menveo in order to restrain the 4P systems from buying Menveo. In other words, it is the *threat* of the bundled penalty that deters customers from buying Menveo. The actual *imposition* of the bundled penalty is relevant to the restraining effect only to the extent that it

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<sup>371</sup> SP 00359503 (“T’s & C’s Review – Laurie McDonald. Laurie joined our call to go over the Contract Terms for the new 4 Product offer”). McDonald Decl. ¶2.

<sup>372</sup> SP 00359503.

<sup>373</sup> McDonald Dep. 32.

<sup>374</sup> Rubinfeld Report ¶197.

<sup>375</sup> Elhauge Merits Report Table 6. List prices are by definition always greater than or equal to GPO Access prices because List Prices are the maximum Sanofi can charge.

reinforces other customers' beliefs that they too will have to pay bundled penalties if they buy too much Menveo.

228. Additional internal Sanofi documents make clear that Sanofi executives and employees believed that its 4P system agreements were bundled. For example, an internal Sanofi presentation from July 2009, when Sanofi had just started signing up systems under its 4P system agreements, has a slide titled "Health System 4 Product **Bundle**" that describes the "4-Product Health System Offer" as "Agreement that offers contract pricing on 4 core product franchises (Adacel, Menactra, pediatric, and Fluzone vaccines) if performance requirements are met."<sup>376</sup> Another internal Sanofi document from June 2009 similarly defines the "4-Product Health System Offer" as "Agreement that offers contract pricing on 4 sanofi pasteur core product franchises (Adacel, Menactra, pediatric, and Fluzone vaccines) if performance requirements are met for those products."<sup>377</sup>

229. As another example, an internal Sanofi document sent by Sanofi's "Deputy Director for Contract Administration" in January 2012 lists Sanofi's private contract offerings. One of the listed options is "4 and 3 product **bundle**," making clear yet again that the highest ranking employee in Sanofi's contract administration department agrees with me that Sanofi's 4P Health System agreement is bundled.<sup>378</sup> A similar slideshow from January 2010 uses this same language.<sup>379</sup>

230. As yet another example, in an October 2010 internal Sanofi email chain Sanofi's "Director of Account Management," John Hjorth, stated that a particular customer was then on a "4 product contract" and that although "there is a

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<sup>376</sup> SP 00489384 at SP 00489390 (emphasis added).

<sup>377</sup> SP 02160365 at SP 02160392. SP 02160363 shows that SP 02160365 was attached to an email sent June 25, 2009.

<sup>378</sup> SP 00279431 at SP 00279436 (the slide lists "PBG Agent Offer" and "GPO Performance Program" as separate offerings, making clear that the "4 and 3 Product Bundle" refers to Sanofi's 4- and 3-product health system agreements) (emphasis added); *id.* at SP 00279432 (noting that the "Health System / Buyer Offers" are "4P and 3P", further making clear that this presentation is referring to Sanofi's 4P and 3P system agreements went discussing the "4 and 3 Product Bundle"). SP 00279429 shows that SP 00279431 was attached to an email Laurie McDonald sent in January 2012 after another Sanofi employee asked for an explanation of how Sanofi's private contracts worked.

<sup>379</sup> SP 00421739 (1/25/10 internal Sanofi presentation titled "Contract Strategy") at SP 00421744 (slide titled "Contract Offerings," includes "4 and 3 Product Bundle: - Direct; - Under GPO").

3 product contract” (referring to the 3-Product No Pediatric agreement) “if they just used pentacel they would go to list.”<sup>380</sup> A customer that only bought Pentacel from Sanofi would by definition violate the 4P system’s Menactra loyalty requirement, so this statement confirms that Sanofi’s “Director of Account Management” also agreed with me that Sanofi can terminate a 4P agreement for violating the Menactra loyalty requirement, which would require the customer to pay disloyal (GPO Access/Non-Contract/List) prices for Sanofi Pediatric vaccines.

231. As yet another example, in March 2010 a Sanofi Regional Account Manager sent an email stating that “line item to line item they [Menveo] are lower [than Menactra], however for a 4 product contract the full-line benefits are better than the 15% discount [on Menveo]. Heck, it is even better than a 50% discount [on Menveo] based on analysis I did for [the customer].”<sup>381</sup> This shows that Sanofi recognized that the 4P system’s bundled penalties meant that systems could not save money by switching to Menveo even if Novartis priced Menveo at a 50% discount. Sanofi’s Director of Account Management for the North Central Region, Gregory Grass,<sup>382</sup> responded: “My take on this issue is the same.”<sup>383</sup> So a Sanofi Director of Account Management also agreed that Sanofi’s 4P system agreements are bundled.

232. As yet another example, a July 2011 internal Sanofi Presentation summarizes Sanofi’s “strategy” for “Health systems” as “reward the purchasing decision makers, rather than the GPO (largely does not influence purchasing), loyalty, **bundled product offering**, market share requirements.”<sup>384</sup>

233. In sum, numerous internal Sanofi documents show that Sanofi executives and employees that its 4P system agreements were bundled. And these are not just a few stray statements by low-level employees. These statements were made by, among others, the most senior employee in Sanofi’s “Contract Administration” department (Laurie McDonald) and two Directors of Account Management.

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<sup>380</sup> SP 02149287.

<sup>381</sup> SP 00481110.

<sup>382</sup> SP 00351738 shows that Gregory Grass is Sanofi’s “Director of Account Management” for the “North Central Region”).

<sup>383</sup> SP 00481110.

<sup>384</sup> SP 00470895 (emphasis added).



234. **e. Sanofi Reminded 4P System Customers That Their 4P System Contract and Pediatric Contract Prices Were Contingent on Maintaining the Menactra Loyalty Commitment.** Professor Rubinfeld’s claim that Sanofi’s 4P system agreements were not bundled also contradicts what Sanofi told its 4P system customers. For example, in my opening merits report I cited a Sanofi email showing that a Sanofi employee told a customer on a 4-Product System contract that if it switched to Menveo it would “move to Novation access pricing” (GPO Access pricing), *i.e.*, pay penalty prices on Sanofi Pediatric Vaccines for disloyalty.<sup>385</sup> Professor Rubinfeld’s only response is to point out that this same document calls the assumption that the customer would move to GPO Access pricing if it switched to Menveo “major.”<sup>386</sup> I assume Professor Rubinfeld is trying to imply that the Sanofi employee used the word “major” to mean “unrealistic or improbable,” but the surrounding context indicates that by “major assumption” the Sanofi employee meant merely that this assumption had a large effect on the customer’s purchasing decision. Indeed, this same email notes that the customer “was OK with the assumptions,” which supports the crucial fact here: that Sanofi told a 4P system customer that it would move to GPO Access pricing if it bought Menveo and that the customer believed that this threat of bundled penalties was credible.

235. Further, there are many more examples of Sanofi reminding 4P system customers that their prices were contingent on fulfilling the Menactra loyalty commitment in their contracts. For example, in 2009 Sanofi sent health systems presentations describing its new 4P system contracts. The template for these presentations explains: “By committing to purchases of all 4 sanofi pasteur key product franchises, (insert GPO name here) member will receive our best contract pricing for Pediatric, Menactra, Adacel, and Fluzone vaccines.”<sup>387</sup> The only other option presented was the 3-Product No Pediatric agreement,<sup>388</sup> which made clear to health systems that they had to commit to Menactra loyalty in order to obtain 4P system contract pricing on Sanofi Pediatric vaccines. The actual

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<sup>385</sup> Elhauge Merits Report ¶221, citing SP 00481099 at SP 00481100.

<sup>386</sup> Rubinfeld Report ¶197.

<sup>387</sup> SP 00102104 (titled “New 2009 Market Share Agreement and Adolescent and Adult Contract for Your Members,” with “Insert Customer Logo Here” below the title) at SP 00102110 (slide titled “SPMSA: Full-Line Loyalty Rewarded at Point-of-Sale and Back-end Rebates”).

<sup>388</sup> *Id.* at SP 00102114.

presentations sent out to health systems that were members of particular GPOs contain this same language.<sup>389</sup>

236. As another example, in March 2010 a Sanofi employee told a 4P system customer that was considering buying Menveo that “if there started being no Menactra purchases over a few month period the contract would be at risk.”<sup>390</sup>

237. As another example, in June 2011 Sanofi presented a slideshow to a 4P system customer stating that its “Sanofi Pasteur contract [is] structured to reward full-line performance which now includes Menactra vaccine and Adacel . . . Use of another meningococcal vaccine could result in a non-compliant contract.”<sup>391</sup>

238. As another example, in May 2010, only a couple months after Menveo entered the MCV4 market, Sanofi’s “Account Management Marketing Team” sent Sanofi’s Account Managers an email including template letters to send to 4P systems reminding them of their contractual commitments.<sup>392</sup> The template letter to the health systems states “it is important that your providers continue to choose sanofi pasteur vaccines in order to meet your contract commitments.”<sup>393</sup> It also provides a template letter for the health system to send to its individual constituent hospitals, which includes a list of Sanofi vaccines that includes Menactra, followed by the statement “Utilizing only these brands is necessary for us to honor our commitments to sanofi pasteur.”<sup>394</sup> Examples of these letters that were actually sent to 4P systems contain similar language. For example, one states

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<sup>389</sup> See CHA075185 (3/31/09 email from a Premier employee to a Child Health Corporation of America employee, stating that “per our conversation today, attached is the slide deck I will be using to present to the subcommittee on 4/14”) and CHA075186 (presentation titled “new Sanofi Pasteur Full-Line and Adolescent/Adult Contract”) at CHA075189 (slide titled “Full-line Loyalty Rewarded at Point-of-Sale and Back-end Rebates,” stating that “By committing to purchases of all 4 sanofi pasteur key product franchises, customers will receive our best contract pricing for Pediatric, Menactra, Adacel, and Fluzone vaccines”).

<sup>390</sup> SP 00023865 (March 21, 2010 internal Sanofi email) at SP 00023866 (“Example 2: University Hospital Health System [...] Four-Product Contract customer – loyal, but very price sensitive (evaluate pricing monthly) understand that the 4 product includes Menactra but thought that if they were already at 90% compliance they would be able to get rebate and maintain their obligations. Explained that if there started being no Menactra purchases over a few month period the contract would be at risk.”).

<sup>391</sup> SP 00040533 at SP 00040576.

<sup>392</sup> SP 01669737.

<sup>393</sup> *Id.* at SP 01669738.

<sup>394</sup> *Id.* at SP 01669739.

“it is important that your providers continue to choose/begin to choose sanofi pasteur vaccines in order to meet your contract commitments,” and includes the same language about “utilizing only” Menactra being necessary for them to “honor” their “commitments to sanofi pasteur.”<sup>395</sup>

239. As another example, after a Novartis salesperson tried to convince a Sanofi 4P system customer that the only consequence of switching to Menveo would be losing rebates on Menactra, a Sanofi salesperson corrected them, explaining that “Menveo is not permitted on our contract strategy.”<sup>396</sup>

240. As yet another example, a July 2013 internal Sanofi memo notes that a customer was requesting a “4 Product Health System [contract] under [the] GPO Premier,” and that Sanofi made sure that the customer “understands the structure and requirements of our 4U contract and know[s] that if awarded the business, compliance would need to be in all 4 product categories.”<sup>397</sup>

241. As yet another example, a Sanofi salesperson checking to make sure that a particular customer on a Sanofi 4P system agreement was compliant with its Menactra commitment relayed that the customer “communicated to their entire group that they cannot use Menveo as Menactra is an expectation of this contracts’ loyalty.”<sup>398</sup>

242. As yet another example a customer on a Sanofi 4P system agreement told Sanofi that it was considering switching from Menactra to Menveo because Novartis was offering Menveo for \$3/dose cheaper.<sup>399</sup> A Sanofi salesperson was concerned that Sanofi would have to match Menveo’s lower price to keep this customer,<sup>400</sup> but a Sanofi Director Account Management<sup>401</sup> corrected her, stating it “is not necessarily the case” that Sanofi needs to match Menveo’s lower price so long as the “customers realiz[e] the full picture as to what Menactra means to their

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<sup>395</sup> SP 01702400.

<sup>396</sup> SP 00670993 at SP 00670994.

<sup>397</sup> SP 01669737.

<sup>398</sup> SP 01161080 at SP 01161085.

<sup>399</sup> SP 00684858 at SP 00684860 (customer is “hung up on the \$3/dose price difference to product. He calculated a possible \$18,000+ difference/loss to not take advantage of this [Menveo] offering”).

<sup>400</sup> SP 00684858 at SP 00684860 (Sanofi salesperson Stacy Nunziato requesting to higher-level Sanofi employees “we need to match this [Menveo] price.”).

<sup>401</sup> Moomau Dep. 4.

contract.”<sup>402</sup> A Sanofi Senior Director of Marketing<sup>403</sup> described this as “a great example of our contract strategy being well executed and avoiding a head to head price comparison with Novartis.”<sup>404</sup> Sanofi’s Senior Director of Account Management then responded wanting to make sure that the Sanofi salesperson “wrap in the impact to the [customer’s] contract (4[-Product health system]) if they move to Menveo, i.e., losing discounts on peds.”<sup>405</sup> Thus, this email exchange shows that: (a) Sanofi employees, including its Senior Director of Account Management, believed that 4P system prices were bundled; (b) Sanofi told 4P system customers that their contracts were bundled and their prices on Sanofi Pediatric vaccines would increase if they switched to Menveo; and (c) that Sanofi employees recognized that the restraining effect of the Bundle would allow Sanofi to maintain its dominant market share among restrained customers without lowering price, which is exactly the theory of how the Bundle anticompetitively divided the MCV4 market in this case.

243. As yet another example, in March 2011 Sanofi decided to remind a 4P system of the bundled penalties in case Menveo’s lower nominal price was tempting them to switch to Menveo.<sup>406</sup> The Sanofi salesperson noted that this particular 4P system customer would not be willing to switch from Sanofi’s ActHIB to Merck’s Pedvax Hib, and thus would have to pay the significantly higher “list” price for Sanofi’s ActHIB vaccine if they switched to Menveo.<sup>407</sup> This Sanofi employee explained that the bundled penalties on Sanofi’s ActHIB vaccine would cause this system to lose money by switching to the cheaper Menveo unless Menveo was priced more than \$50 below its list price.<sup>408</sup> This is yet another example of Sanofi employees not only using the 4P system’s bundled penalties to deter customers from buying Menveo, but also recognizing how the Bundle allows Sanofi to maintain artificially elevated prices without losing market

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<sup>402</sup> SP 00684858 at SP 00684859.

<sup>403</sup> <https://www.linkedin.com/in/timperdue>.

<sup>404</sup> SP 00684858.

<sup>405</sup> SP 00684858.

<sup>406</sup> SP 00378755.

<sup>407</sup> SP 00378755 (“even if Gundersen analyzed Menveo with Pediarix and Boostrix, Gundersen will not change from ActHIB (they do not like Merck and PedvaxHIB). Four doses of ActHIB at list price is the difference-make in this analysis. . . . Novartis would have to deeply discount Menveo \$50 off of list price), which they can’t do, to eliminate the advantage we have contractually.”).

<sup>408</sup> *Id.*

share, which is the exact theory of how the Bundle anticompetitive divided the MCV4 market in this case.

244. **g. Novartis Acknowledged That Sanofi's 4P System Contract Prices Were Bundled.** Professor Rubinfeld also ignores contemporaneous Novartis documents observing that Sanofi's 4-Product health system agreements were bundled. [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] „409  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] 410  
[REDACTED]  
[REDACTED]  
[REDACTED] „411

Thus, both firms in the MCV4 market disagree with Professor Rubinfeld's claim that Sanofi's 4P system agreements are not bundled.

245. **i. Evidence That 4P System Contracts Successfully Restrained Competition Confirms They were Bundled.** If Professor Rubinfeld were right that Sanofi's 4P system agreements imposed only *single-product* disloyalty penalties (i.e., that disloyalty on Menactra would only increase the price of Menactra), then Sanofi's 4P system agreements would not have any significant restraining effect on Menveo sales. This is because: (1) the difference between loyal and disloyal Menactra prices is very small in comparison to the bundled Penalties on Sanofi Pediatric vaccines; and (2) customers prefer to standardize on a single MCV4 vaccine, so customers that decided to buy Menveo would usually switch 100% to Menveo and thus not even ever pay the slightly higher disloyal price for Menactra.<sup>412</sup> Evidence that Sanofi's 4P system agreements significantly restrained Menveo sales would therefore contradict Professor Rubinfeld's claim that Sanofi's 4P system agreements were not bundled.

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409 [REDACTED]

410 [REDACTED]

411 [REDACTED]

412 *Supra* Part II.A.2.



246. Here, many different types of evidence show that the 4P system agreements significantly restrained Menveo sales. I pointed out in my opening merits report that internal Sanofi and Novartis documents both recognized contemporaneously that Sanofi's Bundle restrained Menveo sales,<sup>413</sup> and Professor Rubinfeld does not refute this. Further, my Menveo share regression indicates that Menveo's share would be 3.8 times higher among 4P systems if not for the bundled penalties on Sanofi Pediatric vaccines.<sup>414</sup> This is consistent with a Sanofi presentation from 2011 acknowledging Sanofi's "4P contract strategy continues to keep the competition out" in the MCV4 market.<sup>415</sup>

## 2. 4P System Rebates Were Bundled

247. As I have shown in my opening merits report and above, committing to Menactra loyalty was unquestionably a condition to Sanofi's 4P agreements, and Sanofi regularly warned 4P system customers that Sanofi could terminate the 4P system agreement if the customer switched to Menveo. The rebates on Sanofi's Pediatric vaccines are significantly higher under Sanofi's 4P system agreements than under Sanofi's disloyal programs.<sup>416</sup> That means hospital systems also face a prospective bundled rebate penalty: they will receive lower rebates on their future Sanofi Pediatric vaccines if they are not willing to make the Menactra loyalty commitment that is a condition of Sanofi's 4P agreements, or are terminated from their 4P system agreements for violating the Menactra loyalty commitment.

248. Granted, the bundled rebate penalty is only prospective, not retroactive. The bundled rebate penalty is *prospective* because if a system does not commit to Menactra loyalty (a condition of the 4P agreement), or has its 4P agreement terminated for violating the Menactra loyalty commitment, then the system will not be eligible for the higher 4P system rebates on any *future* purchases of Sanofi Pediatric vaccines. However, the bundled rebate penalty is *not retroactive* because if a 4-Product system violates the Menactra loyalty commitment in the most recent period, it will still receive the higher 4-Product system rebates on the 4P system's *past* purchases of Sanofi Pediatric vaccines from

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<sup>413</sup> Elhauge Merits Report Part V.E.

<sup>414</sup> Elhauge Merits Report ¶208.

<sup>415</sup> SP 01691480 at SP 01691482.

<sup>416</sup> For example, the 4P system agreement that Professor Rubinfeld cites as an example provides for a 5.0% rebate on Sanofi Pediatric vaccines. SP 01824693. In contrast, Sanofi's non-contract program by definition does not provide any rebates, and Sanofi's GPO Access program provides only a 1.0% administrative fee. *See, e.g.*, SP 01125516 at SP 01125518.

the most recent period so long as that 4P system satisfied the Pediatric loyalty condition.<sup>417</sup> This means that refusing to make the Menactra loyalty commitment, or violating the Menactra loyalty commitment, will effectively increase the net prices (after accounting for rebates) of Sanofi's Pediatric vaccines for a system's future purchases but not its past purchases. This prospective bundled rebate penalty is thus functionally analogous to the prospective bundled contract price penalties that PBG members face: if PBG members are not willing to make a Menactra loyalty commitment or are terminated for violating their Menactra loyalty commitment, then they will have to pay higher contract prices for all their *future* Sanofi Pediatric purchases, but termination will not retroactively increase the prices of any of their past Sanofi Pediatric purchases. Professor Rubinfeld provides no reasoning as to why one should ignore the prospective bundled rebate penalties Sanofi imposes on hospital systems.

### *3. 4P System "Under GPO" Agreements Had Same Bundled Requirements as 4P System "Direct" Agreements*

249. About half of Sanofi's 4P system agreements are "direct" (i.e., solely between Sanofi and the health system) while the other half are "under GPO" (i.e., entered into not only between Sanofi and the health system, but also the health system's GPO).<sup>418</sup> There is no difference between "direct" and "under GPO" 4P system agreements in terms of their contract prices or the loyalty commitments systems must make to enter into them.<sup>419</sup> The only difference between the two types of 4P system contracts is that, in "direct" contracts, all of the rebates are paid directly to the health system, whereas in "under GPO" contracts, these rebate payments are split between the system and GPOs (the payments to the systems'

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<sup>417</sup> See, e.g. SP 01824693 (example 4P system agreement cited by Rubinfeld Report n. 290). In contrast, the single-product loyalty rebates are retroactive. For example, if a system violates its Pediatric loyalty requirement in the most recent period, it is not entitled to the higher 4P system rebates for Sanofi Pediatric vaccines for its past purchases in that period.

<sup>418</sup> "MRbut501 4P system direct vs gpo.csv" (since Menveo entry 52% of 4P system Menactra sales were "direct" rather than "under GPO.").

<sup>419</sup> SP 00421739 (January 2010 internal Sanofi presentation titled "Contract Strategy". The pin-cited slide is titled "Health System/Buyer – 4 Product". It includes 4P system contract prices, which the slide conveys as "discounts" relative to list prices, and the performance requirements, which include "Meninge (MCT):  $\geq 90\%$  of prior year sales." The only difference it notes between the "HS under GPO" and "HS – no GPO affiliation" is the "rebates/admin fees." For "HS under GPO" it lists the "rebate/admin fees" as "2% Rebate to HS Qualifying Products & 2% Admin Fee to GPO", whereas for "HS – no GPO affiliation" this is "5% Rebate Qualifying Products to HS / 3% for non-qualifying products").

GPOs are called “administrative fees”).<sup>420</sup> Thus, the only functional difference between Sanofi’s “direct” and “under GPO” 4P system agreements is that the prospective bundled rebate penalty is solely in the form of lower future rebates for “direct” contracts, whereas it is a combination of lower future rebates and lower future administrative fees for “under GPO” contracts. That minor difference does not have any practical relevance for any of my conclusions. Indeed, Professor Rubinfeld does not discuss this distinction in his report.

250. Nonetheless, I understand that Sanofi, through its counsel, has taken the dubious position in this case that Sanofi’s 4P “under GPO” agreements do not require a commitment to Menactra loyalty and/or are not bundled. As I explain below, Sanofi’s contemporaneous internal documents and statements to customers make clear that the bundled requirements of the Sanofi 4P “under GPO” agreements are exactly the same as the Sanofi 4P “direct” agreements.

251. **a. Internal Sanofi Documents Refer to Both Their “Direct” and “Under GPO” 4P System Agreements as a “Bundle.”** Sanofi’s “direct” and “under GPO” 4P system agreements are both a “bundle” according to the highest ranking employee in Sanofi’s “Contract Administration” department, Laurie McDonald. A presentation she sent to other Sanofi employees in January 2012 includes a list of Sanofi’s “contract offerings.”<sup>421</sup> Under the heading “4 and 3 Product Bundle,” it notes there are two versions, “Direct” and “under GPO,” making clear that both are a “Bundle.”<sup>422</sup> Another internal Sanofi document from January 2010 likewise classifies both its “under GPO” and its “direct” 4P system agreement as a “Bundle,” and acknowledges that the only difference between the two is whether they pay just rebates or a combination of rebates and administrative fees.<sup>423</sup>

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<sup>420</sup> *Id.*

<sup>421</sup> SP 00279431. SP 00279429 shows that SP 00279431 was attached to an email Laurie McDonald sent in January 2012 after another Sanofi employee asked for an explanation of how Sanofi’s private contracts worked.

<sup>422</sup> SP 00279431 at SP 00279436 (the slide lists “PBG Agent Offer” and “GPO Performance Program” as separate offerings, making clear that the “4 and 3 Product Bundle” refers to Sanofi’s 4- and 3-product health system agreements) (emphasis added); *id.* at SP 00279432 (noting that the “Health System / Buyer Offers” are “4P and 3P”, further making clear that this presentation is referring to Sanofi’s 4P and 3P system agreements went discussing the “4 and 3 Product Bundle”).

<sup>423</sup> SP 00421739 at SP 00421744 (Sanofi internal slide showing two subtypes under the category “4 and 3 Product Bundle”, “Direct” and “Under GPO”); *id.* at SP 00421746 (making clear that only difference between “direct” and “under GPO” is rebate/admin fees).

252. **b. Sanofi Reminded Customers on “under GPO” 4P System Agreements That Their Contracts Were Bundled.** For example, in July 2013 a system requested to enter into a “4 Product Health System under GPO Premier” agreement with Sanofi.<sup>424</sup> Sanofi employees assured that the system “understands the structure and requirements of our 4U [4-Product under GPO] contract and know[s] that if awarded the business, compliance would need to be in all 4 product categories. Upon product reward, [customer] sites would be required to use all our products under our 4U offering.”<sup>425</sup> As another example, in March 2011 a Sanofi employee told a system contemporaneously on a 4-Product under GPO agreement that the system would have to pay “list price” (i.e., the unbundled penalty price) for its Pediatric vaccines if it switched to Menveo.<sup>426</sup>

253. In sum, both internal Sanofi documents by Sanofi’s head of “Contract Administration” and actual Sanofi statements to 4P system customers confirm that Sanofi “under GPO” and “direct” 4P system contracts both include the Bundle.

#### *4. 4P System Contracts Required Near-100% Exclusivity to Menactra*

254. Professor Rubinfeld notes that Sanofi’s 4P health system agreements do not technically require 100% exclusivity to Menactra, but instead impose a “market share” requirement that their current-year Menactra purchases exceed 90% of their prior year MCV4 purchases.<sup>427</sup> As explained above in Part II.A.2: (1) requiring a customer to buy 90% of their MCV4 demand from Sanofi will usually force that customer to buy 100% of their MCV4 from Sanofi because customers prefer to standardize on a single MCV4 vaccine; and (2) the economic literature is clear that requiring 100% exclusivity is not necessary for vertical contracts to restraint rival sales or cause anticompetitive effects. Further, the fact that the MCV4 market was shrinking from 2009 to 2010 means that the 4P system Menactra loyalty requirement actually on average technically required customers to purchase more than a 90% share of their MCV4 from Sanofi in 2010.<sup>428</sup>

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<sup>424</sup> SP 01669737.

<sup>425</sup> *Id.*

<sup>426</sup> SP 00378755 (Sanofi employee relaying his conversation with the system Gundersen in March 2011). Sanofi data shows that Gundersen was on a 4-product “under GPO” agreement at the time. “MRebut4002 Gundersen Contract Status.csv”.

<sup>427</sup> Rubinfeld Report ¶191.

<sup>428</sup> Elhauge Merits Report ¶97.

*5. Technical Legal Terminability of Sanofi's 4P System Contracts Does Not Make Them Practically Terminable*

255. Professor Rubinfeld notes that 4P system customers technically have the legal ability to terminate their 4P system agreements, but Professor Rubinfeld does not appear to draw any conclusions from this fact.<sup>429</sup> As discussed above in Part II.A.3., the technical legal terminability of the 4P system agreements does not reduce their restraining effect because terminating the 4P system agreement would not allow the customer to evade Sanofi's Bundled penalties. To the contrary, termination would trigger those bundled penalties by requiring to the system to pay higher prices for Sanofi's Pediatric vaccines under Sanofi's disloyal contract programs (GPO Access or Non-Contract). In other words, because the non-penalty prices were available on Sanofi's pediatric vaccines only through the bundled contracts, the fact that the contracts may have been terminable does not in any way diminish their anticompetitive effects. Customers needed to be on a contract that requires Menactra loyalty in order to avoid the bundled penalties.

*6. 4P System Bundled Penalties Were Large*

256. I showed in my opening merits report that 4-Product systems would have to pay 46-57% higher contract prices for Sanofi Pediatric vaccines if they did not contractually commit to Menactra loyalty.<sup>430</sup> This shows that the bundled penalties on Sanofi's 4P system agreements were very large even if one ignores the prospective bundled rebate penalties. Professor Rubinfeld's claims to the contrary are all wrong.

257. **a. Sanofi's 3-Product "No Menactra" System Contract Was Not Generally Available.** Professor Rubinfeld argues that 4-Product system customers did not face significant bundled penalties for buying Menveo based on the premise that they could enter into a "3-Product No Menactra" system contract that provided similar Sanofi Pediatric prices as the 4-Product system contracts but did not require Menactra loyalty.<sup>431</sup> However, I already showed in my opening merits report that Sanofi did not publicize or offer a "3-Product No Menactra" to hospital systems, and Professor Rubinfeld does not dispute this.<sup>432</sup> I further showed that only one system ever received a "4-Product no Menactra" agreement

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<sup>429</sup> Rubinfeld Report ¶192.

<sup>430</sup> Elhauge Merits Report ¶120.

<sup>431</sup> Rubinfeld Report ¶194.

<sup>432</sup> Elhauge Merits Report ¶123.



and that Sanofi internally acknowledged that it was a one-time contract that was Sanofi's "only contract" under that strategy.<sup>433</sup> That one 3-Product No Menactra agreement was thus a secret, special form of management exception that was only given once to one customer, and could not provide any realistic hope to medical providers that they could avoid bundled penalties for being disloyal to Menactra.<sup>434</sup> Professor Rubinfeld does not dispute that.

258. **b. Option of Switching Pediatric Vaccines to GSK Does Not Eliminate Bundled Penalty or Restraint.** Professor Rubinfeld also repeats his fallacious argument that customers can avoid the bundled penalties by switching from Sanofi Pediatrics to GSK Pediatrics. As I explained above regarding Professor Rubinfeld same argument as applied to PBG members: (1) customers may not be willing to switch to non-Sanofi vaccines for all of their Pediatric vaccines because they may strongly prefer particular Sanofi Pediatric vaccines; and (2) even a customer that does switch to non-Sanofi Pediatric vaccines must incur a different type of bundled penalty in the form of having to use a less-medically preferred vaccine. Further, abundant other evidence confirms that the Bundle was effective at restraining Menveo sales and thus directly refutes Professor Rubinfeld's claim that the ability to switch to GSK Pediatric vaccines negated the Bundle's restraining effect.<sup>435</sup>

259. **c. 4P System Bundled Penalties Large Even After Accounting for VaxMax Discounts.** In my opening merits report, I showed that 4P system customers would have to pay 46-57% higher contract prices for Sanofi Pediatric vaccines if they did not contractually commit to Menactra loyalty, and instead purchased under Sanofi's disloyal programs (GPO Access and No-Contract).<sup>436</sup> Professor Rubinfeld does not dispute this fact, but asserts that I have overstated the penalties 4P system customers faced by "ignoring" the VaxMax discounts a customer could receive when it purchases on one of Sanofi's disloyal programs.<sup>437</sup> I did not "ignore" VaxMax discounts, but in fact showed that the average 4P system order would not qualify for *any* VaxMax discounts if it was made under one of Sanofi's disloyal programs.<sup>438</sup>

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<sup>433</sup> Elhauge Merits Report ¶123.

<sup>434</sup> Elhauge Merits Report ¶123.

<sup>435</sup> Elhauge Merits Report Part V.E.

<sup>436</sup> Elhauge Merits Report Table 6.

<sup>437</sup> Rubinfeld Report ¶195.

<sup>438</sup> Elhauge Merits Report Table 10.

260. Professor Rubinfeld asserts that, after accounting for VaxMax discounts, the average price penalty on Sanofi Pediatric vaccines for 4P system customers would range from 12% for Pentacel up to 21% for ActHIB.<sup>439</sup> To begin with, Professor Rubinfeld's estimated 12-21% penalties are significant, especially when one considers that restrained customers used many more doses of pediatric vaccines than MCV4 vaccine. Indeed, Professor Rubinfeld suggestion here that such penalties would not suffice to divide the market conflicts with his claim elsewhere that a 4% penalty on Menactra alone sufficed to divide the MCV4 market.<sup>440</sup>

261. Nevertheless, Professor Rubinfeld made multiple errors that significantly and artificially reduced his calculated price penalties for 4P system customers. Like with his equivalent calculation for PBG members, Professor Rubinfeld incorrectly ignored all discounts besides VaxMax discounts (such as cash, online, and seasonal discounts). Worse yet, Professor Rubinfeld functionally assumed that customers who purchase through a wholesaler or distributor would qualify for VaxMax discounts.<sup>441</sup> That is incorrect because, as Professor Rubinfeld admits, indirect orders are not eligible for VaxMax discounts.<sup>442</sup> This is an especially large mistake for 4P system customers because indirect sales accounted for 31% of Menactra doses purchased by 4P system customers.<sup>443</sup>

262. Table 6 presents a corrected version of Professor Rubinfeld's Exhibit 19. It shows that, even if one ignores the rebates 4P systems receive, the penalties on Sanofi's Pediatric vaccines range from 23% for Pentacel to 40% for ActHIB.

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<sup>439</sup> Rubinfeld Report ¶195, Exhibit 19.

<sup>440</sup> See *infra* Part V.A.2.

<sup>441</sup> Rubinfeld's analysis completely ignored customers who purchase through wholesalers or distributors. See "price\_in\_april.sas" program from Rubinfeld backup. This means he is functionally assuming that customers who buy through wholesalers or distributors receive VaxMax discounts in the same proportion as other customers. That is incorrect because purchases through wholesalers or distributors are ineligible for VaxMax discounts.

<sup>442</sup> Rubinfeld Report ¶527.

<sup>443</sup> Rubinfeld Report ¶527. Professor Rubinfeld also erroneously argues that customers could further reduce bundled penalties by consolidating their orders to obtain larger VaxMax discounts. Rubinfeld Report ¶195. His argument ignores that such consolidation would inflict inventory costs that make such consolidation unfeasible at any customers and that would themselves impose a penalty. See *supra* note 238; *infra* Part V.F.2.

<b>Table 6: Weighted Average Penalties 4P Systems Faced for Switching to Menveo (Corrected Version of Rubinfeld Exhibit 19) (Excluding Rebates)<sup>444</sup></b>			
<b>Product</b>	<b>Average Actual Price Paid</b>	<b>Average Hypothetical Price Paid Under GPO Access Program</b>	<b>% Penalty for Switching to Menveo</b>
ActHIB	\$13.84	\$19.39	40%
Daptacel	\$13.54	\$17.02	26%
I POL	\$15.70	\$19.92	27%
Pentacel	\$46.69	\$57.49	23%
Tripedia	\$13.60	\$17.23	27%

263. Moreover, these bundled penalties are even higher if one incorporates rebates into 4P system customers' prices using the methodology Professor Rubinfeld used when calculating incremental Menactra prices.<sup>445</sup> Table 6 shows that, if one incorporates rebates into 4P system customers' prices, the average penalty on Sanofi Pediatric vaccines ranges from 31% for Pentacel up to 49% for ActHIB.

<sup>444</sup> "MRebut71 Corrected Weighted Average Penalties.xlsx" (4P sheet).

<sup>445</sup> Rubinfeld Report n. 645.

<b>Table 7: Weighted Average Penalties 4P Systems Faced for Switching to Menveo (Corrected Version of Rubinfeld Exhibit 19) (Including Rebates)<sup>446</sup></b>			
<b>Product</b>	<b>Average Actual Price Paid</b>	<b>Average Hypothetical Price Paid Under GPO Access Program</b>	<b>% Penalty for Switching to Menveo</b>
ActHIB	\$13.01	\$19.39	49%
Daptacel	\$12.73	\$17.02	34%
IPOL	\$14.76	\$19.92	35%
Pentacel	\$43.89	\$57.49	31%
Tripedia	\$12.78	\$17.23	35%

264. In Part V.F.3 below, I show that these substantial bundled penalties significantly reduced Menactra’s incremental prices in a way that caused the Bundle to anticompetitively divide the MCV4 market.

#### *7. Sanofi’s Incentive to Terminate 4P System Contracts*

265. Customers on Sanofi’s 4P system agreements were extremely compliant with their Menactra loyalty commitments: I showed in my opening merits report that Menactra had a 98% share among restrained Sanofi 4P customers.<sup>447</sup> Professor Rubinfeld criticizes me for not identifying “any health system that purchased Menveo and was subsequently terminated,”<sup>448</sup> but the 98% Menactra share among restrained 4P system customers confirms that Sanofi did not need to terminate 4P system customers for buying Menveo because their bundled commitments kept them compliant.

266. However, the evidence does indicate that Sanofi has terminated 4P system contracts for noncompliance with its loyalty requirements. For example, in September 2012, Sanofi informed the 4P system Geisinger System Services (“Geisinger”) that Sanofi “will exercise the cancellation clause as stated in

<sup>446</sup> “MRebut71 Corrected Weighted Average Penalties.xlsx” (4P sheet).

<sup>447</sup> Elhauge Merits Report ¶208.

<sup>448</sup> Rubinfeld Report ¶198.



Additional Term 3 of the Vaccine Program Agreement,”<sup>449</sup> which was the term that allowed Sanofi to cancel the agreement for any reason with 30 days notice.<sup>450</sup> Geisinger would therefore have to purchase Sanofi vaccines at GPO access pricing starting on October 15, 2012.<sup>451</sup> Consequently, from October 15, 2012 onward, customers previously on the Geisinger 4P system contract had to repeatedly pay penalty prices under Sanofi’s GPO Access Program for hundreds of doses of Sanofi’s Pediatric vaccines (IPOL, ActHIB, Pentacel and Daptacel).<sup>452</sup> The data and indicates that Sanofi terminated the Geisinger 4P agreement because Geisinger was switching over to non-Sanofi vaccines such as Menveo. For example, IMS data indicates that Geisinger had purchased 100% of its MCV4 from Sanofi in 2010 and 2011, but then switched completely over to Menveo in September 2012, a month before Sanofi terminated its 4P agreement.<sup>453</sup>

267. Professor Rubinfeld also asserts incorrectly that Sanofi does not have incentives to terminate noncompliant systems.<sup>454</sup> Again, he is ignoring that terminating a system for noncompliance deters future noncompliance—it would make clear to a hypothetical noncompliant system that they had to return to compliance in order to avoid penalty Pediatric prices, and if other systems heard about this termination it would also deter them from being noncompliant. Further, as I have shown in my opening merits report and above in Part II.B.1, Sanofi regularly reminded 4P system customers of the threat of termination for noncompliance. The fact that the threat of termination successfully deterred 4P system customers from buying Menveo is confirmed by the evidence that: (a)

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<sup>449</sup> SP 01671374 (9/10/12 Sanofi contract termination letter). *See also* SP 01209457 (Sanofi “Contract Update – October 2012,” listing Geisinger under “Cancelled Contracts.”); SP 01231023 (“PCWG Meeting – September 24, 2012,” under “Notes for meeting minutes” states “Geisinger – contract cancelled end date mid October.”).

<sup>450</sup> SP 01368592 at SP 01368595 (Geisinger System Services agreement with Sanofi, with a term from 1/1/12 – 12/31/13. Additional Term 3 states “Either Geisinger System Services or Sanofi Pasteur Inc. shall have the right to cancel this Agreement upon thirty (30) days written notice.”).

<sup>451</sup> SP 01671374 (“Please note that effective October 15, 2012, Geisinger System Services will be eligible to purchase Sanofi Pasteur vaccines under the terms of the Premier-Sanofi Pasteur Group Purchasing Agreement.”). *See also* SP 01209457 (stating that Geisinger System Services was “cancelled as of 10/14; members may purchase under Premier GPO from 10/15 moving forward.”).

<sup>452</sup> “MRebut4003 Geisinger Sanofi Data.csv”.

<sup>453</sup> “MRebut4003 Geisinger Purchase Data.csv” (IMS DDD data of customers in the Geisinger System).

<sup>454</sup> Rubinfeld Report ¶198.



Menactra had a 98% share among restrained 4P system customers; (b) Sanofi internal documents acknowledged that the 4P system agreements restrained Menveo sales;<sup>455</sup> (c) Novartis internal documents acknowledging that Sanofi's 4P system bundled penalties drove compliance;<sup>456</sup> and (d) Menveo would have had at least a 3.8 times higher share among restrained 4P system customers if not for the bundled penalties, holding all else equal.<sup>457</sup>

268. Professor Rubinfeld also asserts incorrectly that I have “not explained why a large sophisticated 4-P customer, even if terminated, would agree to pay non-loyal prices on other Sanofi vaccines.”<sup>458</sup> Professor Rubinfeld ignores my finding that Sanofi almost *never* granted individualized discounts to class members: only 0.05% of Class members got individualized discounts on all of their purchases since Menveo entry.<sup>459</sup> Professor Rubinfeld does not dispute that. Sanofi's transaction data thus directly refutes Professor Rubinfeld's claim that terminated 4P system customers would be able to negotiate away the bundled penalties. Professor Rubinfeld is also wrong that 4P systems are large enough to exert buying power over Sanofi: even the largest 4P system, Sutter Health, constitutes only 1% of Menactra's private sales.<sup>460</sup>

269. Professor Rubinfeld also asserts that Sanofi “often paid rebates [on Menactra] to health systems that failed to meet the Menactra benchmark.”<sup>461</sup> His Exhibit 20 is purportedly a list of 4-P system contracts that he asserts “Missed their Menactra Benchmark and Still Earned Rebates on Menactra.” Professor Rubinfeld's analysis does not support his claim that 4-P system customers could switch to Menveo without penalty because the systems in his Exhibit 20 were actually *extremely* compliant with their commitments to maintain a high Menactra market share: Menactra's share among this group was 98%.<sup>462</sup> Thus, Rubinfeld's Exhibit 20 is really a list of 4-Product systems whose overall demand for MCV4 vaccines decreased so much that they could not satisfy the technical Menactra benchmark (90% of prior year MCV4 sales) even if they bought only Menactra for their MCV4 vaccines. Sanofi's 4-Product system agreements explicitly state that

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<sup>455</sup> *Supra* note 415.

<sup>456</sup> *Supra* note 409.

<sup>457</sup> Elhauge Merits Report ¶208.

<sup>458</sup> Rubinfeld Report ¶198.

<sup>459</sup> Elhauge Merits Report ¶372.

<sup>460</sup> “MRebut501 4P system relative size.csv”.

<sup>461</sup> Rubinfeld Report ¶199, Exhibit 20.

<sup>462</sup> “MRebut22 Rubin Exh 20 Average MCT Share.csv.”

the “90% of prior 12 month [MCV4] sales” benchmark is just a proxy for “market share,”<sup>463</sup> so it makes perfect sense that Sanofi paid Menactra rebates to this group of 4P system customers that on average had a 98% Menactra share. It would make no sense for Sanofi to punish these 4P system customers, who bought essentially all of their MCV4 from Sanofi, simply because their overall MCV4 demand decreased relative to the prior year; doing so would not achieve Sanofi’s goal of restraining customers from buying Menveo.

270. Sanofi internal documents show that Sanofi was willing to overlook systems not meeting the technical performance requirements only if the systems’ failure was due to decreasing demand rather than the usage of non-Sanofi vaccines. For example, in a November 2011 meeting of Sanofi’s Private Contract Work Group (PCWG), Sanofi “approved” Indiana University Health (“IU Health”), a system on a 4P contract, to be paid its rebate “on all product categories.”<sup>464</sup> An attached report for use in this “Fee Review” shows that IU Health had not met the technical 90% Menactra benchmark, but had not purchased any Menveo.<sup>465</sup> The report then states under “Menactra Performance Comments” that IU Health is “[c]ompliant” and that the failure to meet the benchmark is due to the “[i]mpact of [the] 2010 school requirement.”<sup>466</sup> In contrast, in this same meeting Sanofi decided *not* to pay rebates “on pediatric products” to the system “Wheaton Franciscan HC” because it had been using rival Pertussis vaccines.<sup>467</sup> In sum, when market conditions—such as the “[i]mpact of the 2010 school requirement”—prevented a customer on one of Sanofi’s bundled contracts from meeting a performance benchmark, the customer was at Sanofi’s mercy, Sanofi would be lenient when a customer was using only Sanofi vaccines. But if use of a rival vaccine cause the failure to meet the benchmark, Sanofi would impose penalties.

*8. Compliance with 4P System Agreements’ Menactra Commitments was Extremely High*

271. I showed in my opening merits report that Menactra’s share among restrained 4P systems was 98%,<sup>468</sup> indicating that compliance with their commitments to maintain high Menactra market shares was extremely high.

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<sup>463</sup> See, e.g., SP 01824693.

<sup>464</sup> See SP 01920028 (11/28/11 Sanofi PCWG meeting minutes) at SP 01920029.

<sup>465</sup> See *id.* at SP 01920031.

<sup>466</sup> See *id.*

<sup>467</sup> *Id.* at SP 01920029.

<sup>468</sup> Elhauge Merits Report ¶208.

Professor Rubinfeld nevertheless asserts incorrectly that compliance with 4P systems' Menactra loyalty commitments was low.

272. Professor Rubinfeld argues that compliance with Sanofi 4P system contracts was low based on the premise that some 4P system customers bought some Menveo.<sup>469</sup> But that fails to show any noncompliance because Sanofi's 4P system contracts do not literally require customers to buy 100% of their MCV4 from Sanofi.

273. Professor Rubinfeld also argues that compliance is low based on the premise that 5% of 4P system customers purchased at least 10% of their MCV4 needs from Novartis.<sup>470</sup> This purported "noncompliance" rate is not particularly high to begin with, but is nonetheless inflated by Professor Rubinfeld's incorrect methodology.

274. Professor Rubinfeld again errs by counting customers as noncompliant even if they meet the literal Menactra loyalty requirement in their contracts. The technical Menactra loyalty requirement for 4P systems is that their current year Menactra purchases be greater than or equal to 90% of their prior year MCV4 (Menactra plus Menveo) purchases.<sup>471</sup> I have corrected Professor Rubinfeld's analysis by switching his classification of a customer from noncompliant to compliant if the data indicated that the customer complied with its applicable technical Menactra loyalty requirement. Correcting Professor Rubinfeld's analysis to track actual compliance indicates that the compliance rate is 96% among restrained 4P systems.<sup>472</sup> Further, if one uses the correct standard test for determining whether the noncompliance rate makes a bundle economically equivalent to tying, then the noncompliance rate for 4P systems is 1%.<sup>473</sup>

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<sup>469</sup> Rubinfeld Report ¶176.

<sup>470</sup> Rubinfeld Report ¶176. He asserts that 6.2% of restrained 4P system customers bought some Menveo and that 83% of those customers purchased at least 10% of their MCV4 needs from Novartis. This means  $6.2\% * 83\% = 5\%$  of restrained 4P system customers purchased at least 10% of their MCV4 needs from Novartis.

<sup>471</sup> Elhauge Merits Report Table 5.

<sup>472</sup> "MRebut176 PBG 4P Cur Share Compliance dose weighted.csv". I have also weighted by doses, whereas Rubinfeld weights all customers equally, although that does not make a significant difference in the ultimate compliance percentages.

<sup>473</sup> "MRebut2295a Tying Test Three at Group Level 4P Only."

### III. THE BUNDLE HAS NO PROCOMPETITIVE BENEFITS

275. In my opening merits report, I demonstrated that the Bundle had no procompetitive effects. Most importantly, I showed that Sanofi did *not* lower its Pediatric (or MCV4) prices to customers when it added the Bundle's Menactra loyalty condition to its contracts.<sup>474</sup> This means that the difference in Pediatric vaccine prices paid by those with bundled contracts (PBG, 4P system) and those not subject to the Bundle (GPO Access, No-Contract) reflects an artificial, anticompetitive penalty for disloyalty to Menactra, rather than any true discount relative to what prices would have been but for the Bundle. I further showed that Sanofi's contemporaneous internal documents did not indicate that Sanofi added the Bundle for any procompetitive reasons (i.e., to increase efficiency, lower costs, or reduce customer prices). Instead, these documents affirmatively indicated that Sanofi added the Bundle in order to anticompetitively restrain competition.<sup>475</sup> Moreover, I explained that if the Bundle was added for legitimate procompetitive reasons, Sanofi would have had every economic incentive to do so before Menveo entered the market in order to increase its sales and profits. The fact that Sanofi added the Bundle only *after* it learned Menveo would enter the market indicates that Sanofi did not add the Bundle for any of the theoretical procompetitive reasons that Professor Rubinfeld hypothesizes. It shows that Sanofi instead added the bundle to anticompetitively restrain competition.<sup>476</sup>

276. Part VI of Professor Rubinfeld's report disputes my analysis, and argues that the Bundle does in fact have procompetitive effects. However, his arguments are both theoretically flawed and unsupported by evidence. In Part A below I explain how Professor Rubinfeld's presentation of the economic theory underlying discounting is both incomplete and inapplicable to the Bundle at issue in this case. In Parts B–D, I address Professor Rubinfeld's arguments that are specific to the Sanofi Bundle at issue, and I explain how these arguments are incorrect or fail to establish any link between the Bundle and the alleged efficiency. Ultimately, the issue is whether *customers* experience any procompetitive effect from the Bundle, and so Professor Rubinfeld's failure to establish that the Bundle lowered vaccine pricing or improved vaccine quality suffices to prove a lack of procompetitive benefits. Indeed, Professor Rubinfeld does not even attempt to quantify the procompetitive efficiencies he alleges or to

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<sup>474</sup> Elhauge Merits Report Part IV.B.

<sup>475</sup> Elhauge Merits Report Part IV.C.

<sup>476</sup> Elhauge Merits Report Part IV.D.

show that they were passed on to consumers at all, let alone to show they were passed on to consumers to an extent large enough to offset the substantial anticompetitive price inflation caused by the Bundle.

***A. Professor Rubinfeld’s Discussion of the Theoretical Efficiencies of Discounts Has Nothing to Do With Bundled Loyalty Commitments or Penalties***

277. Part VI.A of Professor Rubinfeld’s report alleges several theoretical benefits from discount programs, but fails to support any argument that Sanofi’s Bundle has procompetitive effects.<sup>477</sup> The theories he presents are unrelated to bundled loyalty contracts, focusing mainly instead on mechanisms such as *volume*-based discounts that are not at issue in this case. He provides no theoretical explanation as to why bundled loyalty commitments would be needed to produce any of the procompetitive efficiencies he discusses, especially when (as here) those bundled loyalty commitments involve penalties rather than discounts. Nor does he provide any evidence that any of these alleged efficiencies apply to Sanofi’s Bundle.

278. Professor Rubinfeld’s efficiency analysis also one-sidedly cites articles from experts and lawyers advancing the interests of defendants in antitrust cases, while ignoring the rest of the literature, including points made in his own academic writing on bundled loyalty contracts. In his academic writing, Professor Rubinfeld asks: “What is the value of [a] potential efficiency benefit? Does it outweigh the possible costs of exclusion? Is there a substantially less exclusionary way to achieve it?”<sup>478</sup> His academic writings also stress that any benefits accruing to a supplier are not necessarily a procompetitive efficiency<sup>479</sup> and that “it is important to evaluate the extent to which those benefits would be achieved in a but-for world without the [bundle].”<sup>480</sup> Yet in his report, Professor Rubinfeld does not analyze any of these issues when discussing the alleged theoretical benefits of discounting and the Bundle in this case. Below, I address each of the theoretical benefits he discusses in turn.

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<sup>477</sup> Rubinfeld Report Part VI.A.

<sup>478</sup> Rubinfeld & Edlin, *Exclusion or Efficient Pricing? The “Big Deal” Bundling of Academic Journals*, 72 ANTITRUST LAW JOURNAL 128, 153-154 (August 2004).

<sup>479</sup> *Id.* (“publishers can point to the likelihood of expanded use of existing journals under the [bundle] imposed by journal publishers]... the value of this extra use may accrue to the publishers in the form of higher prices, so this ‘efficiency’ may not save a defendant”).

<sup>480</sup> *Id.*



*1. Professor Rubinfeld Erroneously Conflates Volume-Based or Unbundled Discounts with Bundled Loyalty Penalties*

279. Professor Rubinfeld claims that “Discount programs are ubiquitous”<sup>481</sup> and that “discount programs generally lead to lower prices.”<sup>482</sup> But such general statements have no bearing on whether bundled loyalty commitments have procompetitive benefits, especially when (as here) they involve penalties rather than discounts. Professor Rubinfeld attempts to establish that bundled loyalty discounts are generally procompetitive by conflating them with true discounts that are unbundled or volume-based, but such discounts are entirely different from the bundled loyalty commitments and penalties levied by Sanofi’s Bundle.

280. Professor Rubinfeld claims he “will distinguish between single-product discounts (not challenged in this matter) and multi-products discounts (the type of discount being challenged by Plaintiffs) where necessary”<sup>483</sup> and acknowledges that “volume discount programs in which the percentage price reduction varies as a function of the volume purchased. . . are not at issue in this matter.”<sup>484</sup> But despite prefacing his discussion of discounting practices in this manner, Professor Rubinfeld nevertheless repeatedly and erroneously conflates unbundled or volume-based discounts with the sort of bundled loyalty commitments at issue in this case.

281. For example, Professor Rubinfeld erroneously conflates bundled loyalty commitments with an example of a hotel that “offers a rewards program that offers travelers a free room after a certain number of trips” and discusses whether and how other hotels might respond to such a program with programs of their own or lower prices.<sup>485</sup> But this example is just an unbundled volume-based discount. It is volume-based, not loyalty-based, because, in Professor Rubinfeld’s own words, the hotel is rewarding the *number* of trips a customer makes to its hotel, rather than conditioning its offer of a free room on the customer’s refusal to patronize any competing hotel chains. It is unbundled because it does not depend on customer purchases of non-hotel services. This example thus involves neither bundling nor a loyalty condition. Professor Rubinfeld erroneously uses this

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<sup>481</sup> Rubinfeld Report ¶202.

<sup>482</sup> Rubinfeld Report ¶203.

<sup>483</sup> Rubinfeld Report ¶202.

<sup>484</sup> Rubinfeld Report ¶204.

<sup>485</sup> Rubinfeld Report ¶¶211–212.

example to argue that “In cases such as this, both single-product and multi-product discount programs generate procompetitive benefits,”<sup>486</sup> even though his example had absolutely nothing to do with multi-product loyalty commitments. He is thus mistakenly imputing procompetitive benefits from volume-based discounting to bundled loyalty commitments, without actually offering any analysis about bundled loyalty commitments.

282. Likewise, Professor Rubinfeld erroneously conflates bundled loyalty commitments with “a rewards program offered by a grocery store,” which he says is a multi-product discount program because it generally covers a wide-selection of items.”<sup>487</sup> Some grocery rewards programs may have discounts that apply to multiple products. But that does not mean the grocery discounts involve bundled loyalty commitments because the discount on one product is not conditioned on loyalty in another product at all, let alone on a loyalty commitment on another product. For example, at a grocery store, olive oil and ice cream might both be discounted, but the discounted olive oil price is not conditioned on consumers purchasing at least 80% of their ice cream from that grocery store (and vice versa), let alone on any consumer commitment to buy 80% of their ice cream from the grocery store. Simple, volume-based grocery rewards programs are thus quite distinct bundled loyalty commitments like Sanofi’s Bundle, which requires customers to commit to buy at least 80% of their MCV4 from Sanofi to avoid disloyal prices on Sanofi’s Pediatric vaccines.

283. Professor Rubinfeld repeats this erroneously conflation of volume-based or unbundled discounts with bundled loyalty commitments throughout his efficiency analysis.<sup>488</sup> His efficiency analysis also throughout erroneously conflates discounts with penalties. In short, Professor Rubinfeld’s efficiency analysis ignores all three of the defining characteristics of bundled loyalty penalties: (1) the bundling; (2) the loyalty commitment; and (3) the use of penalties rather than discounts.

284. It is economically erroneous to conflate volume-based or unbundled discounts with bundled loyalty penalties. First, to the extent there are any volume-based efficiencies, like economies of scale (i.e., it might cost less per unit to sell more volume to a single customer), volume-based discounts are not only a less

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<sup>486</sup> Rubinfeld Report ¶212.

<sup>487</sup> Rubinfeld Report ¶206.

<sup>488</sup> See, e.g., Rubinfeld Report ¶¶ 205, 216-231, 276, 279.

restrictive alternative to loyalty discounts, but a more effective alternative than loyalty discounts because they are more closely related to the relevant efficiency. A loyalty discount gives a lower price to a loyal customer who purchases little volume than it gives to a disloyal customer who buys more volume, even though the latter clearly contributes more to any volume-based efficiency. Second, single-product efficiencies like economies of scale cannot justify the bundling of multiple products. Third, if there is a true efficiency that is necessary to lower costs, and it gets passed on in a discount, that benefits consumers. In contrast, a price penalty cannot reflect an efficiency that is passed on to consumers because by definition it raises the prices that consumers would otherwise pay.<sup>489</sup>

285. Based on his erroneous conflation of volume and loyalty-based discounts with bundled loyalty discounts, Professor Rubinfeld claims that “the fact that multi-product loyalty discounts are widely used in a range of industries suggests that they are encouraged and supported by customers and typically procompetitive.”<sup>490</sup> In fact, he has provided zero evidence that bundled loyalty discounts are widely used. Loyalty discounts limit the *share* of a product that can be purchased from rivals, which is rare in typical consumer markets, and bundled loyalty discounts are rarer still. Nor does Professor Rubinfeld cite any academic support for the proposition that the sort of bundled loyalty commitments and penalties at issue in this case are common outside of concentrated markets where suppliers have sufficient market power to anticompetitively restrain customers.

## *2. Professor Rubinfeld’s Claims That Discount Programs Reduce Prices Have Nothing to Do with Bundled Loyalty Commitments or Price Penalties*

286. Professor Rubinfeld asserts that: “Most fundamentally, discount programs lower price and expand output, and thereby, enhance competition.”<sup>491</sup> However, he is wrong to conflate any conditioned price difference—i.e., a price offered in exchange for meeting certain other requirements (such as loyalty commitments) — with a real discount that lowers prices. Indeed, in his own academic writing, as well as elsewhere in his report, Professor Rubinfeld recognizes that an alleged discount program can be a sham that instead inflicts a price penalty when “a firm with monopoly power raises the standalone price of its

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<sup>489</sup> See Elhauge Merits Report ¶135-146 (showing that the Bundle here involved only penalties and no discounts); *infra* Part III.B.1 (same).

<sup>490</sup> Rubinfeld Report ¶209.

<sup>491</sup> Rubinfeld Report ¶210.

monopoly product – presumably to some above-monopoly level – and then introduces a bundled rebate program offering a ‘sham’ discount. In this particular case, purchasers of the bundle receive no benefit, yet nevertheless are induced to switch from the competitor’s nonmonopoly products to the monopolist’s nonmonopoly products.”<sup>492</sup> His own recognition that a conditioned price difference can reflect a price penalty and sham discount directly contradicts his claim in this part of his report that such a conditioned price difference suffices to establish a competition-enhancing discount. Professor Rubinfeld fails to analyze whether a discount is a “sham” when discussing his claim that discount programs inherently lower prices.

287. Professor Rubinfeld’s discussion of the theoretical virtues of discounting also never explains (1) how any of his discussion of true price reductions is relevant to bundled loyalty commitments; (2) why firms who wanted to lower prices could not implement the less restrictive alternative of lowering prices without bundled loyalty commitments; (3) why, if there are volume-based efficiencies, a less restrictive and more effective alternative would not be to use single-product volume-based discounts rather than bundled loyalty commitments; (4) why any of his discussion of lowering prices is relevant to programs, like Sanofi’s, that offered no discount, but rather imposed price penalties on buyer who refused to make the bundled loyalty commitment. I discussed all these points in detail in my opening merits report, but Professor Rubinfeld never addresses my analysis.<sup>493</sup>

288. Instead of addressing the relevant efficiency issues, Professor Rubinfeld asserts that my “claim that other discount programs are not the same as ‘simple price cuts’ does not demonstrate that one is more procompetitive than the other.”<sup>494</sup> This assertion misses my point: I did not claim that simple price cuts can *always* produce the same results as discount programs. Rather, I pointed out it was erroneous to claim that “because simply cutting prices generally benefits consumers, bundled loyalty commitments must too.”<sup>495</sup> Professor Rubinfeld offers no analysis to dispute my point, but nonetheless repeatedly conflates bundled loyalty commitments with simple price discounting in precisely the way I warned

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<sup>492</sup> Daniel L. Professor Rubinfeld, 3M’s Bundled Rebates: An Economic Perspective, 72 U. CHI. L. REV. 243, 252 (2005); *see also* Rubinfeld Report ¶354.

<sup>493</sup> *See* Elhauge Merits Report ¶¶135-146.

<sup>494</sup> Rubinfeld Report ¶213.

<sup>495</sup> *See* Elhauge Merits Report ¶ 131.

against. I further show in the next two sections (II.A.3-4) how, in the few hypotheticals where Professor Rubinfeld actually illustrates loyalty conditions, the procompetitive benefits he theoretically posits have no application to this case, and, in any event, could easily be achieved through the less restrictive alternative of using simple price cuts without loyalty conditions.

289. Professor Rubinfeld also claims, in a footnote, that my hypothetical example of a penalty<sup>496</sup> does not work because a disloyalty penalty is not rational strategy.<sup>497</sup> In Professor Rubinfeld's words, my example compares a situation "where an incumbent firm lowers prices from \$100 to \$90 in response to competitive entry, to a share-based single-product loyalty discount program, where the incumbent sets the disloyal price at \$110 but offers the loyal customers a price of \$100 in response to rival entry."<sup>498</sup> His assertion that such disloyalty penalties cannot rationally be imposed conflicts with his own academic writing, which recognizes precisely this possibility of a "sham" discount where "a firm with monopoly power raises the standalone price of its monopoly product – presumably to some above-monopoly level."<sup>499</sup> In any event, Professor Rubinfeld was right in his academic writing, and wrong in his report, that such disloyalty penalties can be imposed. The analysis in his report erroneously assumes that: (1) the monopolist has no monopoly power that gives it some incontestable demand for many buyers;<sup>500</sup> (2) buyers who have committed to buy 80% from the monopolist can somehow freely switch to the entering rival; (3) a rival foreclosed from 80% of the market will nonetheless be able to offer a price of \$90; and (4) the rival will have incentives to cut prices, rather than to accept a divided market that increases its profits. Moreover, as he acknowledges, this illustration is just about a "single-product loyalty discount,"<sup>501</sup> which ignores the fact that in this case the penalty was

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<sup>496</sup> See Elhauge Merits Report ¶¶ 132-133.

<sup>497</sup> Rubinfeld Report ¶213 n.308.

<sup>498</sup> *Id.*

<sup>499</sup> See *supra* n. 492.

<sup>500</sup> A buyer would have incontestable demand if it would make some purchases from the monopolist even if the rival product were priced considerably lower. For example, a hospital system might have some hospitals that are wedded to Menactra and would not switch in response to a considerable price premium over Menveo, or a hospital department that is wedded to Menactra and would not switch in response to a considerable price premium over Menveo. In those cases, some portion of the hospital system or hospital demand will be incontestable, even though in a free market other hospitals in the system or other departments in the hospital would be happy to switch to Menveo if it offered a lower price.

<sup>501</sup> Rubinfeld Report ¶213 n.308.



bundled, *i.e.*, it was imposed on other products (Pediatric vaccines) that the rival Novartis did not make and thus could not compete for.

*3. Professor Rubinfeld Fails to Establish That Bundled Loyalty Penalties Can Allow Efficient Risk Allocation*

290. Professor Rubinfeld claims that “firms can structure discount programs to shift the risk towards the party best able to bear it.”<sup>502</sup> But he does not cite any literature to support the proposition that bundled loyalty discounts (let alone bundled loyalty penalties like in this case) efficiently allocate risk. Nor do any of Professor Rubinfeld’s examples involve bundled loyalty commitments or penalties. Furthermore, in each of his examples, Professor Rubinfeld fails to explain why a supplier cannot lower risk even more effectively by simply offering lower prices. He fails to demonstrate that his theoretical efficient risk allocation justification applies here and even if he did, he disregards the possibility of this far less restrictive means of achieving the benefits that he posits.

291. Professor Rubinfeld hypothesizes a customer who does not know which specific products out of a supplier’s offering it will have high demand for, despite knowing its overall demand for the supplier’s offering. He then argues that “a multi-product discount program could reduce risk [to the customer] to the extent that it allowed the customer to get the discounted price regardless of the mix of products purchased.”<sup>503</sup> However, his hypothetical does not include any loyalty condition and thus cannot justify a bundled loyalty commitment. With a bundled loyalty commitment, a customer’s decision to purchase one product from a supplier’s rival would result in higher prices on other products offered by the supplier. Such a bundled loyalty commitment does not in any way lower the risk to customers or shift them to the supplier. To the contrary, the bundled loyalty commitment increases the risk that the customer might want to purchase less of one product from the supplier, perhaps because the supplier’s product or pricing turns out to be less attractive than those of its rival’s. Nor does Professor Rubinfeld articulate any bundling condition in this hypothetical, which just involves a firm offering a discount on multiple products. So his hypothetical does not seem to involve either bundling or a loyalty condition. But even if Professor Rubinfeld meant to imply some unspecified bundling condition, and he could show the theoretical justification applies here, he offers no explanation for why the less

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<sup>502</sup> Rubinfeld Report ¶215.

<sup>503</sup> Rubinfeld Report ¶216.

restrictive alternative would not be for the supplier in his example to simply lower the prices for all of its products. That would better advance the purported justification of allowing the customer to get the lower price regardless of the mix of products purchased because it would also reduce the risk that the customer might prefer to purchase a given product from the supplier's rival. Finally, in this hypothetical, Professor Rubinfeld simply assumes there is a true discount that lowers prices, which cannot justify the bundled loyalty penalties at issue in this case. In short, this hypothetical involves no loyalty condition, no articulated bundling condition, and no penalty, and thus has nothing to do with the bundled loyalty penalties at issue in this case. This hypothetical also fails to explain why simple price cutting would not be a more effective way to lower risk.

292. The premise of Professor Rubinfeld's next hypothetical is that a 10% discount in return for an exclusivity commitment is superior to a 10% discount in return for a 150 unit purchase for a customer that has a 50% chance of needing 100 units and a 50% chance of needing 200 units, because with the latter agreement the customer risks receiving no discount (if it ends up needing only 100 units).<sup>504</sup> Unlike here, this hypothetical involves a single-product loyalty commitment with a true discount, and thus it does not involve either the bundling condition or the penalties at issue in this case. Nor does Professor Rubinfeld explain why customer risk would not be reduced even further by the supplier simply lowering its prices by 10% without requiring any kind of commitment. Then the customer would also avoid the risk that it might prefer to buy some of the product from the supplier's rival. If the hypothetical exclusivity commitment lowered the seller's cost in a way that was necessary for the price cut, that would be an efficiency, but Professor Rubinfeld's hypothetical is purely about risk reduction and does not include any cost-reducing efficiency. Nor is there any evidence to support a cost-reducing efficiency in this case. In short, this hypothetical involves no bundling and no penalty, making it inapplicable to the bundled penalties at issue in this case. Professor Rubinfeld fails to explain why simple price cutting would not be a more effective way to lower risk than the method in his hypothetical.

293. Similar problems apply to Professor Rubinfeld's remaining hypothesized discounts based on prior-year volume or based on consolidated purchasing through buying groups.<sup>505</sup> Both are about single-product discounts and thus do not involve either a bundling condition or penalties. Nor does any of his

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<sup>504</sup> Rubinfeld Report ¶218.

<sup>505</sup> Rubinfeld Report ¶¶219–221.

discussion explain why risks would not be reduced even more effectively through simple price cuts. Thus, his hypotheticals are irrelevant to the bundled penalties at issue here and fail to show a risk-reducing efficiency even on their own terms.

*4. Professor Rubinfeld Fails to Establish That Bundled Loyalty Penalties Allow Procompetitive Price Discrimination*

294. Professor Rubinfeld next explains that discount programs can create a form of price discrimination that efficiently enables supplier to recoup fixed costs.<sup>506</sup> But Professor Rubinfeld does not even try to explain why bundled loyalty commitments or penalties would be necessary to achieve a price discrimination that is needed to cover fixed costs, and he cites no literature to support that claim. His statement that “differential pricing (and pricing with multi-product loyalty discounts in particular) can be procompetitive”<sup>507</sup> is pure *ipse dixit*, without any reasoning or evidence related to bundling or tying. Professor Rubinfeld also does not explain why spreading fixed costs would lower prices when fixed costs do not affect the profit-maximizing price. Nor does he cite any literature to show that increasing price discrimination increases consumer welfare. In fact, the literature on bundling shows that, when bundling increases price discrimination, it reduces consumer welfare.<sup>508</sup>

295. Professor Rubinfeld’s hypothetical illustration of the claim that discount programs can efficiently spread costs does not involve bundled loyalty commitments or penalties, and it arbitrarily assumes discontinuous consumer demands—i.e., markets where customers will buy X units at one price and Y units at a price that is more than 30% higher, but whose volume of purchases are somehow utterly unaffected by any price in between—that one does not see in real markets.<sup>509</sup> He sets up the following stilted hypothetical as follows:

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<sup>506</sup> Rubinfeld Report ¶¶222–224.

<sup>507</sup> Rubinfeld Report ¶223.

<sup>508</sup> See Elhauge & Nalebuff, *The Welfare Effects of Metering Ties* (Jan 28, 2016), SSRN: <http://ssrn.com/abstract=2591577>; Elhauge, *Rehabilitating Jefferson Parish: Why Ties Without a Substantial Foreclosure Share Should Not Be Per Se Legal*, ANTITRUST LAW JOURNAL (forthcoming 2015), <http://ssrn.com/abstract=2528605>. See also FREDERIC M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 494 (3d ed. 1990) (all price discrimination redistributes consumer surplus to producers); MASSIMO MOTTA, COMPETITION POLICY 495 (2004) (second-degree price discrimination has effects similar to perfect price discrimination and can “appropriate all consumer surplus”); DON E. WALDMAN & ELIZABETH J. JENSEN, INDUSTRIAL ORGANIZATION 393 (1998).

<sup>509</sup> Rubinfeld Report ¶¶225–229.

consider a firm that has incremental costs of \$1 per unit and annual fixed costs of \$2,000. Assume also that the firm has two customers. A small customer with relatively inelastic demand is expected to purchase 1,000 units whether the price is \$2 or \$3 per unit. A large customer with relatively elastic demand will purchase 2,000 units at a price of \$2 per unit, but will purchase 3,000 units if the price is reduced to \$1.50 per unit. Now consider three alternate pricing models for the firm: (1) a flat-pricing model where the firm charges every customer the same price, (2) a volume-based model where the firm provides a larger discount to customers that purchase larger volumes, and (3) a share- or potential-based model where the firm offers a discounted price to all customers as long as a share-based or potential-based performance benchmark is met.<sup>510</sup>

None of the “pricing models” that Professor Rubinfeld posits involve bundled loyalty commitments, where the firm raises the price of one good if a customer does not commit to loyalty on a different good. Nor do any of them involve, as here, penalties rather than discounts.

296. Furthermore, even within his stilted hypothetical, Professor Rubinfeld ignores the clear less restrictive alternative of a flat-pricing model where the firm charges every customer \$1.50 per unit without any commitments, restrictions or conditions of any kind. Inexplicably, Professor Rubinfeld simply assumes that the flat-pricing model must involve charging \$2 per unit, and he rejects this option as inefficient because it “does not maximize the larger customer’s purchases, and the firm risks losing its business to a rival that offers a volume discount to the larger customer.”<sup>511</sup> He then claims the more efficient solution instead is the “share- or potential-based pricing model where the firm charges \$1.50 per unit to all customers that commit to buying exclusively.”<sup>512</sup> But a flat-pricing model with a \$1.50 per unit charge has the exact same result, because it also means “the firm will sell 4,000 units to the two customers and earn \$6,000, sufficient to cover both its variable and fixed costs.”<sup>513</sup> Professor Rubinfeld gives no reason why a commitment is necessary for the firm to charge both customers \$1.50 per unit.<sup>514</sup>

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<sup>510</sup> Rubinfeld Report ¶225.

<sup>511</sup> Rubinfeld Report ¶226.

<sup>512</sup> Rubinfeld Report ¶¶228.

<sup>513</sup> Rubinfeld Report ¶228.

<sup>514</sup> If the firm still risks losing the customers to a rival that charges less than \$1.50 per unit then that would be an even more procompetitive outcome for the two customers in the hypothetical.

Moreover, in his hypothetical, the share-based discount involves uniform pricing, rather than price discrimination, and thus it bears no relation to his general claim that discount programs price discriminate in a way that allows cost spreading.

297. Nor do any of Professor Rubinfeld's other examples involve bundled loyalty penalties. He argues that volume-based programs, like frequent flier programs, allow firms to efficiently allocate fixed costs.<sup>515</sup> But such volume-based discounts involve no bundling, no loyalty condition, and no price penalties. They thus have nothing to do with the bundled loyalty penalties at issue in this case.

*5. Professor Rubinfeld Fails to Establish That Bundled Loyalty Penalties Reduce Production and Distribution Costs*

298. Professor Rubinfeld claims that discount programs can “help firms to realize economies of scale and economies of scope” by enabling them to “predict future purchases” and realize “efficiencies associated with selling multiple products to a customer or with selling products to a customer on a repeated basis.”<sup>516</sup> But Professor Rubinfeld does not even try to explain how bundled loyalty commitments lower costs through these efficiencies – there is no mention of bundling in his analysis – and he fails to cite any literature for his claims; his assertions are pure *ipse dixit*, stated without evidence or reasoning. His argument that loyalty programs increase the predictability of sales and reduce transaction costs proves too much because one could say that about any monopolistic exclusion of rivals. After all, any monopolistic exclusion of rivals by definition makes it more predictable that the monopolist will get all sales and reduces the transaction costs of sales since the exclusion eliminates any need to persuade customers the product and terms are better than those offered by rivals. Nor do any of his arguments explain how bundled loyalty penalties could possibly pass on any cost-savings to customers.

***B. Professor Rubinfeld's Claims that Sanofi's Bundle Has Procompetitive Efficiencies Are Unfounded***

299. Part VI.B of Professor Rubinfeld's reports claims several procompetitive benefits specific to Sanofi's Bundle. Before addressing each

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<sup>515</sup> Rubinfeld Report ¶¶230–231.

<sup>516</sup> Rubinfeld Report ¶¶232–234.



specific claim, I first address various general claims he makes in the introduction to this section.

300. First, Professor Rubinfeld collects various quotes from Sanofi executives to support his claim that the 2009 changes to Sanofi's contracting strategy were a response to competitive pressure in a broad vaccine market.<sup>517</sup> But this fact has no bearing on whether these changes were procompetitive. It simply means that Sanofi thought its profits would be higher with the Bundle than without the Bundle. That does not show it increased its profits procompetitively rather than anticompetitively. Indeed, one common response to competitive pressure is adopting anticompetitive restraints to prevent or dull that competition, like Sanofi did in this case. Microsoft bundled its operating system to its internet browser in response to competition from Netscape, but no economic literature shows that this meant the Microsoft bundle was procompetitive. To the contrary, Professor Rubinfeld's own academic writing indicates that he has concluded that the Microsoft bundle was an anticompetitive response to Netscape competition.<sup>518</sup>

301. Second, Professor Rubinfeld also argues that one must consider "the full combination of changes that Sanofi implemented" when evaluating whether Sanofi's conduct was procompetitive or anticompetitive, and he claims that I fail "to consider other aspects of Sanofi's contract changes, including new contract forms for health system customers, an increase in potential rebates for system customers, and an increase in potential administrative fees for PBGs."<sup>519</sup> But it is Professor Rubinfeld who fails to explain why it is economically relevant to consider contracting changes that are completely unrelated to and independent of the challenged Bundle, and thus could have been implemented without the Bundle. Any contracting changes that could have occurred *with or without* the addition of the Bundle cannot have any bearing on whether the Bundle was anticompetitive or procompetitive. Again, Sanofi could have implemented those purportedly procompetitive changes without the Bundle, and thus, at minimum, the least restrictive alternative would have been to do them without the Bundle.

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<sup>517</sup> Rubinfeld Report ¶¶235–240.

<sup>518</sup> See Fisher & Rubinfeld, *U.S. v. Microsoft - An Economic Analysis*, ANTITRUST BULLETIN 1, 35-36 (Spring 2001) ("Microsoft made its bundling decision not to achieve efficiencies but to foreclose competition. . . . This foreclosure of competition had an immediate harmful effect on consumers, whose choice of browsers was restricted and who faced substantial uncertainty."); *id.* at 43 ("We conclude that, in the case of Microsoft, the types of [bundling] provisions at issue were anticompetitive.").

<sup>519</sup> Rubinfeld Report ¶241.

302. Third, Professor Rubinfeld claims that “the addition of the Menactra loyalty condition is a natural extension of the portfolio-level contracting strategy that Sanofi and other vaccine manufacturers had followed for years.”<sup>520</sup> But Professor Rubinfeld provides no reasoning, evidence, or literature to either (1) explain what constitutes a “natural extension” to a bundling strategy, or (2) support his claim that such an extension means that this new Bundle, or any prior bundle, has procompetitive efficiencies.

303. Below, I address each of the specific procompetitive benefits that Professor Rubinfeld claims to result from Sanofi’s contracting, and show why he is wrong about each of them.<sup>521</sup> A key general point about all the alleged benefits is that, as I noted earlier in this Part of my report, any benefits are procompetitive only if they are *passed on to customers*. Professor Rubinfeld does not actually show that the Bundle produced any actual cost savings. However, even if (contrary to fact) the Bundle had lowered Sanofi’s costs, that would not suffice to make it procompetitive because a procompetitive benefit, by definition, is one that benefits consumers, and it would not benefit consumer welfare if it did not result in lower prices. Neither Sanofi nor Professor Rubinfeld have even claimed that the Bundle improved vaccine quality, and so the fact that Professor Rubinfeld is wrong about it lowering prices suffices to demonstrate a lack of procompetitive benefit. Moreover, Sanofi’s documents indicate that its Senior Director of Pricing explicitly recommended that Sanofi focus on “What pricing structure makes us the most money - by driving customer behavior,”<sup>522</sup> not on a pricing structure based the procompetitive efficiencies Professor Rubinfeld claims exist.

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<sup>520</sup> Rubinfeld Report ¶242.

<sup>521</sup> Professor Rubinfeld has abandoned one of the few procompetitive justifications David Kaplan, Sanofi’s expert at the class certification stage, had claimed for Sanofi’s Bundle: that Sanofi’s bundling contracts were designed to give Sanofi’s customers “the products they want in the right volumes and the right mixes.” Kaplan Rebuttal Class Report ¶19. In any event, I already showed that bundled loyalty commitments not only fail to advance this alleged justification, but directly undermine it by restraining the ability of customers to choose the volume and mixes that are right for themselves. See Elhauge Supplemental Class Report ¶ 105.

<sup>522</sup> SP 00497202 at SP 00497210 (November 2009 internal Sanofi document titled “Pricing & Contract Strategy: Maintaining our Dominant Market Share & Positioning Ourselves for 2010”).

*I. Sanofi's Bundle Did Not Provide Lower Prices to Customers*

**304. a. Professor Rubinfeld Conflates a Conditioned Price Difference with a Real Discount; The Bundle Did Not Provide Any Up-front Discount.**

Professor Rubinfeld claims that Sanofi's PBG contracts offered a significant up-front discount.<sup>523</sup> In so stating, he is conflating a conditioned price difference with a real discount, ignoring a point that he made in his academic writing. In that academic writing, Professor Rubinfeld has recognized that conditioned price differences can be sham discounts that are really price penalties if the monopolist raised the standalone price of its monopoly product and introduced a sham discount from that artificially raised penalty price.<sup>524</sup> In fact, I explained in Section IV.C of my merits report that Sanofi's contemporaneous business records indicate that it thought it was imposing a penalty that would anticompetitively insulate itself from competition in exactly this manner: raising list prices without offering a real discount.<sup>525</sup>

305. Professor Rubinfeld does not actually claim that Sanofi reduced contract prices when it added the Bundle. Professor Rubinfeld's report focuses only on the fact that a PBG contract member pays less than list price, without considering whether contract members are paying lower prices than they would without the addition of the Bundle to those contracts. By the same logic that Professor Rubinfeld applies in his report, it would be even more procompetitive for Sanofi to raise its list prices further while keeping its contract prices the same, because that would result in a higher "upfront" sham discount off of list price. For example, suppose the contract price of a Sanofi pediatric vaccine is \$68 and the list price is \$100, representing a 32% discount. Professor Rubinfeld's logic would lead one to conclude that a change in the list price to \$136 – with no change to the contract price – raises the "upfront" discount to 50%, and therefore is

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<sup>523</sup> Rubinfeld Report ¶243.

<sup>524</sup> Daniel L. Professor Rubinfeld, *3M's Bundled Rebates: An Economic Perspective*, 72 U. Chi. L. Rev. 243, 252 (2005) ("The 'contractual tying' scenario is one in which a firm with monopoly power raises the standalone price of its monopoly product – presumably to some above-monopoly level – and then introduces a bundled rebate program offering a 'sham' discount. In this particular case, purchasers of the bundled receive no benefit, yet nevertheless are induced to switch from the competitor's nonmonopoly products to the monopolist's nonmonopoly products.").

<sup>525</sup> Elhaug Merits Report ¶¶148-149. I address Professor Rubinfeld's response to these internal documents *infra* at subsection C of this part of the report.

procompetitive rather than an anticompetitive penalty. There is obviously no merit to this type of reasoning.

306. Furthermore, even if (unlike here) a true discount were provided, Professor Rubinfeld does not—contrary to his own academic writing—ask the key question: “Is there a substantially less exclusionary way to achieve it?”<sup>526</sup> Professor Rubinfeld does not show why the Bundle is necessary to offer such a discount; why can’t Sanofi simply offer pediatric vaccines at 32% off of list price to PBG members without imposing any bundled loyalty commitment? The “upfront” discount is not a procompetitive justification for adding the Bundle because the discount can be provided even without the Bundle. Professor Rubinfeld never offers any explanation for why the Bundle would be necessary to offer any upfront discount. Nor does Professor Rubinfeld show any actual cost savings related the bundled loyalty commitment that might make such a commitment necessary to offer such a discount.

307. **b. Professor Rubinfeld Is Wrong that the Bundle Increased PBG Administrative Fees.** Professor Rubinfeld next argues that Sanofi increased its PBG admin fees by 0.5% at same time it added the Bundle.<sup>527</sup> But I explained in my merits report that some customers’ rebates and administrative fees decreased after Sanofi added the Bundle, and that many other contract terms also changed to become more restrictive or reduce fees.<sup>528</sup> The fact that the Bundle was associated with both increases and decreases in administrative and other fees affirmatively indicates that any such fee changes were unrelated to the Bundle. Thus, the subset of fee changes that increased fees to PBGs cannot be considered a procompetitive benefit of the Bundle, and are independent of it.

308. Even if one incorrectly assumes that Sanofi provided PBGs with higher administrative fees in exchange for the Bundle, this does not provide a benefit to PBG members. Professor Rubinfeld claims in a footnote that “To the extent that PBGs distribute admin fees to their members, the increase in administrative fees is a direct benefit for PBG members. To the extent they are not passed on, the increase in admin fees can be used by the PBGs to improve their

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<sup>526</sup> Rubinfeld & Edlin, *Exclusion or Efficient Pricing? The “Big Deal” Bundling of Academic Journals*, 72 ANTITRUST LAW JOURNAL 128, 153-154 (August 2004).

<sup>527</sup> Rubinfeld Report ¶244.

<sup>528</sup> Elhaug Merits Report ¶¶376-377.

service for PBG members.”<sup>529</sup> But this is pure speculation on his part; he does not point to evidence that members actually benefitted in either manner. Documents in this case indicate, to the contrary, that the increased administrative fees were to designed pay PBGs for the increased compliance efforts they would need to make.<sup>530</sup> Thus, the increased administrative fees reflected a payment to enforce compliance, rather than something that benefits members. Professor Rubinfeld also does not explain why the admin fees could not have been raised without imposing the Bundle, which would have been a less restrictive alternative. Moreover, any supposed change in fees and rebates is too small to outweigh the common anticompetitive overcharge. A 0.5% increase in admin fees does not even come close to offsetting the 38-43% overcharge paid by class members in this case.<sup>531</sup>

**309. c. Professor Rubinfeld Does Not Show That The Bundle Reduced Upfront System Prices.** Professor Rubinfeld claims that Sanofi’s 3P and 4P system contracts offered an up-front discount off vaccine list prices.<sup>532</sup> Professor Rubinfeld is once again conflating a nominal price difference with a real discount, rather than demonstrating a procompetitive benefit. He fails to address that Sanofi did not reduce its contract prices when it added the Bundle to hospital system contracts.<sup>533</sup> In fact, all Professor Rubinfeld notes is that there was a difference between list and contract prices, and that these “upfront” discounts incorporated

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<sup>529</sup> Rubinfeld Report ¶244 n.319.

<sup>530</sup> See, e.g., SP 01140316 at 1140316 (internal Sanofi presentation entitled “PBG Revised Offer” dated Mar. 31, 2009 discussing new 2009 contracting strategy stating, “Objectives: Create incentives and performance metrics to drive compliance for Adacel and Menactra . . . [p]rovide a competitive offer that recognizes we are asking more of the owner [PBG] . . . [m]otivate owners to be ‘all-in’ driving performance across franchises”); SP 00116648 at 116697 (internal Sanofi presentation entitled “Sell 4 Success” dated Apr. 2009 discussing new 2009 contracting strategy and stating, “[r]egular maintenance of compliance to the full line of sanofi pasteur vaccines will reward you with 5.75% in administrative fees for all Addendum A purchases”); SP 00010805 at 10812 (internal Sanofi presentation dated Apr. 8, 2010 entitled “Menactra: Pricing & Contracting Strategy” stating, “Utilize the full portfolio and contract benefits to sell against Menveo with contract owners [PBGs] . . . [c]onsultative message that clearly links 4 product loyalty to pricing and admin fee benefits”); SP 0099477 at 999491 (internal Sanofi presentation entitled “Account Management POA 3 Contracting Update discussing new 2009 contracting strategy and stating “New Contract Compliance Reports . . . It is imperative that all products meet compliance metrics so contract owners can receive fees/rebates”).

<sup>531</sup> See Elhauge Merits Report Part VII.

<sup>532</sup> Rubinfeld Report ¶¶245-246, 250.

<sup>533</sup> See Elhauge Merits Report ¶141.



VaxMax discounts; he does not even claim that prices were lower than they would have been but-for the Bundle or that the Bundle was required to offer any purportedly lower prices.

310. **d. Bundle Did Not Increase 4P System Rebates.** Professor Rubinfeld does not assert that Sanofi provided any increased rebates to Sanofi 4P system in exchange for adding the Bundle. (Indeed, Professor Rubinfeld mistakenly claims that 4P system contracts are not bundled).

311. Professor Rubinfeld incorrectly asserts that customers who switched from a pre-Bundle PBG agreement to a Sanofi 4P system agreement “would see their total compensation (i.e., rebate and data fees combined) increase by at least a half percentage point from 4.5% to 5.0% for the pediatric, booster, and Meninge products.”<sup>534</sup> Professor Rubinfeld does not cite any source for this proposition. I showed in my opening merits report that the rebates a customer would be eligible for actually *decreased* for some customers who entered into Sanofi’s 4P system agreements,<sup>535</sup> and Professor Rubinfeld has no response. The fact that the Bundle was associated with both increases and decreases in rebates and other fees affirmatively indicates that any such rebate and fee changes were unrelated to the Bundle. Thus, the subset of fee changes that increased fees/rebates to 4P Systems cannot be considered a procompetitive benefit of the Bundle, and are independent of it.

312. Further, even if one falsely believed that Sanofi did provide a 0.5% increased rebate to 4P systems when it added the Bundle, this would not provide a benefit to customers because the evidence indicates that Sanofi’s 4P system rebates were designed to pay systems for the compliance efforts they must undertake.<sup>536</sup> Thus, the increased administrative fees reflected a payment to enforce compliance, rather than something that benefits members.

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<sup>534</sup> Rubinfeld Report ¶247.

<sup>535</sup> Elhauge Merits Report ¶144.

<sup>536</sup> SP 00372495 at SP 00372499-100 (email dated Mar. 20, 2009 from Deputy Director Regional Accounts to Account Management group commenting on 2009 contract changes and noting, “We pay our contract owners a rebate to manage the contract and this really helps to keep [Sanofi employees] out of the direct line of fire if someone is not doing what they are supposed to.”); SP 00662601 (email dated June 14, 2011 from Sanofi’s Deputy Director of Contract Administration Laurie McDonald to Sanofi’s U.S. Director, National Account Chris Woolway stating, “Another reason we pay rebates to the buying group is to manage the contract and associated requirements in doing so.”).

313. Professor Rubinfeld also does not explain why the supposed 0.5% increase in rebates he identifies could not have occurred without imposing the Bundle, which would have been a less restrictive alternative.

314. Moreover, any supposed change in rebates is too small to outweigh the common anticompetitive overcharge. A 0.5% increase in rebates does not even come close to offsetting the 38-43% overcharge paid by class members in this case.<sup>537</sup>

315. Professor Rubinfeld also mentions that Sanofi added growth incentive rebates for Adacel and Menactra and offered price protection in its health system contracts.<sup>538</sup> But the growth incentives are clearly unrelated to the Bundle – they are based on a different performance benchmark, not loyalty to Menactra. Professor Rubinfeld does not provide evidence or even allege that either of these terms were offered in exchange for the Bundle. And in fact Sanofi ended up continuing to increase health system prices anyway.<sup>539</sup>

*2. Sanofi's Bundle Did Not Procompetitively Lower Costs by Increasing Predictability or Buyer Flexibility*

316. **a. Professor Rubinfeld Offers No Evidence that the Bundle Lowered Sanofi Costs by Increasing Predictability, Let Alone Any Evidence that Any Cost Savings Was Passed on to Consumers.** Professor Rubinfeld lists a set of “risk factors” that “require Sanofi to perform significant pre-planning of vaccine production in order to meet demand in a timely manner” including supply constraints, lead times, and the fact that Menactra and Fluzone share machinery.<sup>540</sup> Professor Rubinfeld then claims, citing only a single piece of testimony from a Senior Director of Commercial Operations at Sanofi, that the 80% Menactra benchmark allows Sanofi to gauge future demand for Menactra and predict how much business a contract will generate.<sup>541</sup> His argument fails to demonstrate a procompetitive efficiency for at least four reasons.

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<sup>537</sup> See Elhauge Merits Report Part VII.

<sup>538</sup> Rubinfeld Report ¶¶248-249.

<sup>539</sup> “172 List and Contract Prices by Contract Type”.

<sup>540</sup> Rubinfeld Report ¶251.

<sup>541</sup> Rubinfeld Report ¶251.

317. First, if the Bundle produced a predictability that lowered Sanofi's costs in a way that allowed Sanofi to offer discounts, one would expect Sanofi's internal documents to discuss and quantify this alleged cost savings because Sanofi would have had to calculate the amount of the cost reduction to decide how much of a discount was merited by those reduced costs. But Professor Rubinfeld cites no contemporaneous evidence of this alleged procompetitive benefit, which indicates that such an efficiency did not drive the Bundle or Sanofi's pricing.

318. Second, Professor Rubinfeld provides no reasoning or evidence to support his claim that the Bundle lowered vaccine costs by improving its ability to pre-plan vaccine production, so he has not actually demonstrated a cost reduction. Nor does he provide any quantification of any alleged cost reduction or any evidence that any alleged cost savings were passed on to consumers. In fact, any claim that cost savings were passed on is affirmatively disproven by the fact that the Bundle only raised prices and was not associated with any true discount.<sup>542</sup>

319. Third, Professor Rubinfeld fails to offer even a theoretical link between planning vaccine production and bundling Menactra to pediatric vaccines. He argues that Menactra and *Fluzone* share the same production machinery,<sup>543</sup> but that cannot justify linking *pediatric* vaccine prices (Fluzone is not a pediatric vaccine) to Menactra loyalty. His failure to explain how the Bundle lowers cost by increasing predictability also means he does not consider any less restrictive alternatives (such as volume benchmarks) that could allow Sanofi to pre-plan vaccine production without bundling the prices of unrelated vaccines.

320. Finally, Professor Rubinfeld's argument that the Bundle made customer vaccine demand more predictable is internally inconsistent with his claim elsewhere in his report that the Bundle had no effect on consumer choices.<sup>544</sup> If the latter claim were true, then the Bundle could not have had any effect on predictability. It is economically inconsistent to simultaneously claim that the Bundle does not affect customer behavior (when trying to dismiss anticompetitive effects) and that the Bundle affects customer behavior in a way that makes demand more predictable (when trying to claim procompetitive efficiencies).

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<sup>542</sup> See Elhauge Merits Report subsection IV.B.

<sup>543</sup> Rubinfeld Report ¶251.

<sup>544</sup> See *infra* Part V.

321. **b. The Bundle Plainly Decreases Buyer Flexibility, Not Increases It as Professor Rubinfeld Claims.** Professor Rubinfeld argues that the Bundle serves the procompetitive efficiency of providing purchasing flexibility to buyers in the face of variations and uncertainties in vaccine needs.<sup>545</sup> This claim makes no sense because buyers would obviously have more flexibility if they did not have to make any bundled loyalty commitment. Suppose that a customer facing uncertain demand for its vaccines is given two choices by Sanofi: a contract where each individual vaccine can be purchased without loyalty in one vaccine affecting the price of another, or a contract where the customer must purchase 80% of its prior year sales of Menactra unless it agrees to pay a higher price on pediatric vaccines. Professor Rubinfeld has somehow concluded that the latter contract provides for more flexibility in the face of uncertainty, creating some kind of procompetitive benefit for the customer. That is blatantly wrong. In fact, the opposite is true.

### *3. The Bundle Did Not Procompetitively Benefit Buyers by Spreading Fixed Costs*

322. Professor Rubinfeld asserts that Sanofi's loyalty discount on Menactra serves the procompetitive efficiency of spreading Sanofi's fixed costs across a diversified set of customers.<sup>546</sup> This argument fails theoretically for the reasons noted above in Part III.B.3: he provides no rationale, literature, or evidence to explain (a) how the bundling condition enables these benefits, (b) why simply offering lower prices or offering volume-based discounts are not less restrictive alternatives, or (c) how this alleged efficiency could possibly explain the use of penalties rather than true discounts. In this section, Professor Rubinfeld also fails to provide any evidence to suggest that the Bundle in this case serves this efficiency.

323. Professor Rubinfeld argues that the Bundle provides this alleged benefit because Sanofi can identify "high business potential" customers, which he defines as "customers who prefer purchasing a high percentage of their vaccines from Sanofi" – i.e., loyal customers – and provide lower prices to them relative to customers with a "low business potential."<sup>547</sup> But the business potential of a customer plainly depends on the volume that the customer purchases, not on whether they limit the share they purchase from Sanofi's rival. Professor Rubinfeld provides no evidence or explanation for why Menactra loyalty, rather

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<sup>545</sup> Rubinfeld Report ¶252.

<sup>546</sup> Rubinfeld Report ¶254-255.

<sup>547</sup> Rubinfeld Report ¶256-259.

than volume, determines how Sanofi's fixed costs are "spread." Under the Bundle, a small customer that commits to Menactra loyalty receives lower prices on Menactra and Sanofi pediatrics than a larger customer who does not commit to Menactra loyalty even if the large customer buys 10 times more Menactra and Sanofi pediatric vaccines than the smaller customer. Giving a small loyal customer a lower price than a large disloyal customer contradicts Professor Rubinfeld's alleged cost "spreading" rationale because the large disloyal customer who buys far more Sanofi pediatric vaccines clearly contributes more to covering fixed costs.

324. In any event, Professor Rubinfeld provides zero evidence that the Bundle actually enabled Sanofi to spread fixed costs or that doing so allowed Sanofi to lower prices to consumers. He simply cites unsupported self-serving assertions by Mr. Grau that the Menactra loyalty condition enabled Sanofi to pool customers and lower prices, but those assertions cite no evidence or analysis of how it lowers fixed costs nor any connection to the bundling condition whatsoever.<sup>548</sup> Indeed, Mr. Grau's own contemporaneous statements contradict his deposition testimony. In a presentation Mr. Grau wrote in November 2009, he stated that "seller cost savings" due to selling larger volumes are "not a material driver in [Sanofi's vaccine] cost structure," in contrast to other industries where "shipping more product can be cheaper to ship than less [product]" or "production cost" can be optimized at larger volumes.<sup>549</sup> Mr. Grau therefore concluded that Sanofi should not use volume-based discounts or other contract structures that achieve cost-efficiencies, but instead should choose the "pricing structure [that] makes [Sanofi] the most money by driving customer behavior," and explained that this could be done by "increas[ing] the customer costs of switching" to rival vaccines.<sup>550</sup>

325. Further, Professor Rubinfeld does not provide any explanation of how spreading fixed costs can lower prices when fixed costs do not affect profit-maximizing prices.

326. Even if one were to incorrectly assume that the Bundle allowed Sanofi to manage its fixed costs in a way that could make its vaccine production more efficient, one would expect to see this discussed in Sanofi's documents so that the company could calculate the level of cost savings and decide how much of a

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<sup>548</sup> Rubinfeld Report ¶254-258.

<sup>549</sup> SP 00497202 at SP 00497209-10.

<sup>550</sup> *Id.* at SP 00497210.



discount to offer customers as a result. But Professor Rubinfeld cites no such evidence, nor have I found any. Nor does he quantify this alleged efficiency or offer any evidence it was passed on to customers to a sufficient extent to offset the anticompetitive. Any such claim that such the Bundle had this procompetitive benefit is affirmatively disproven by the fact that the Bundle only raised prices and was not associated with any true discount.

327. Finally, Professor Rubinfeld's argument that the Bundle expanded Sanofi sales in a way that enabled it to spread fixed costs is internally inconsistent with his claims elsewhere in his report that there was no Bundle and that the Bundle had no effect on consumer choices.<sup>551</sup> If the latter claim were true, then the Bundle could not have had any effect on expanding Menactra sales and thus could not help Sanofi spread fixed costs. It is economically inconsistent to simultaneously claim that the Bundle does not affect customer behavior (when trying to dismiss anticompetitive effects) and that the Bundle affects customer behavior in a way increased Menactra sales (when trying to claim procompetitive efficiencies).

#### *4. The Bundle Did Not Procompetitively Spread Common Costs Across Vaccines*

328. Professor Rubinfeld claims that there are economies of scope in manufacturing multiple vaccines in a single plant—i.e., that the costs of one firm producing two vaccines in a plant is lower than the total cost of two different firms producing one of the two products.<sup>552</sup> However, he presents no evidence that increasing Menactra production reduces pediatric vaccine costs in any way or vice versa. He notes that a textbook says that there are sometimes economies of scope in vaccine production,<sup>553</sup> but that does not show that such economies exist between Menactra and Sanofi pediatric vaccines. He also states that Menactra shares its facility and some of its production lines with other vaccines, but that provides no evidence that there are economies of scope that make it cheaper to produce other vaccines if Menactra production increases.<sup>554</sup> Nor does he provide any explanation for why increasing Menactra production on a common production line would reduce, rather than increase, the marginal cost of making other vaccines that share that production line. Moreover, Fluzone is the only specific vaccines that he says

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<sup>551</sup> See *infra* Part V.

<sup>552</sup> Rubinfeld Report ¶261.

<sup>553</sup> Rubinfeld Report ¶261.

<sup>554</sup> Rubinfeld Report ¶261.

shares production machinery with Menactra, which cannot justify bundling Menactra to Pediatric vaccines because Fluzone is not a pediatric vaccine.<sup>555</sup> Professor Rubinfeld thus not only fails to provide evidence of any economies of scope in manufacturing, but the theoretical one he posits is irrelevant to the actual Bundle. He also does not provide any contemporaneous evidence from Sanofi's business records showing that manufacturing economies were an impetus for the Bundle.

329. Professor Rubinfeld also claims that Sanofi enjoys economies of scope in promotion because "Sanofi uses the same sales force to promote its portfolio of vaccines."<sup>556</sup> But he provides no evidence from Sanofi's contemporaneous business records that shows promotion economies were an impetus for the Bundle. He also describes the efficiency as a reduction in the "cost of promotion *per vaccine*,"<sup>557</sup> which is by definition a volume-based efficiency. Professor Rubinfeld offers no explanation for why such a volume-based efficiency could not be advanced more effectively and less restrictively with volume-based pricing.

330. Professor Rubinfeld also claims there are economies of scope in vaccine distribution but the only evidence Professor Rubinfeld cites is a single conversation with a Sanofi employee that more doses in a shipment results in a lower per-dose distribution costs.<sup>558</sup> That contradicts contemporaneous internal Sanofi business records stating that cost-savings from shipping more products is not "a material driver in [Sanofi's] cost structure."<sup>559</sup> But he again provides no evidence from Sanofi, contemporaneous or otherwise, that shows distribution economies were an impetus for the Bundle. Crucially, he does not even state that Menactra and any pediatric vaccines were *actually* shipped together, only that the vaccines have the same temperature requirement and that per-dose distribution costs depend on the number of doses. And even if one assumes without evidence that the vaccines are shipped together, the fact that the alleged efficiency is driven by the number of doses means it is a volume-based efficiency. Professor Rubinfeld offers no explanation for why such a volume-based efficiency could not be advanced more effectively and less restrictively with volume-based pricing.

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<sup>555</sup> Rubinfeld Report ¶251.

<sup>556</sup> Rubinfeld Report ¶262.

<sup>557</sup> Rubinfeld Report ¶262.

<sup>558</sup> Rubinfeld Report ¶263.

<sup>559</sup> SP 00497202 at SP 00497209-10.

331. If any of the three economies of scope alleged by Professor Rubinfeld – manufacturing, promotion, or distribution – were actually efficiencies enjoyed by Sanofi and passed on to customers, one would expect to see such efficiencies discussed in Sanofi’s contemporaneous business records so they could calculate the amount of the cost savings and decide how much of a discount any cost savings merited. But there is no such evidence, indicating that such efficiencies did not drive the Bundle or Sanofi’s pricing. Nor does Professor Rubinfeld provide evidence that any cost savings actually occurred, any quantification of such cost savings, or any evidence that the cost savings were passed onto customers as required to actually constitute as a procompetitive benefit. In fact, any claim that there was a procompetitive benefit from these alleged economies of scope is affirmatively disproven by the fact that the Bundle only raised prices and was not associated with any true discount.

332. Finally, Professor Rubinfeld’s argument that the Bundle enabled Sanofi to achieve economies of scope across different vaccines is internally inconsistent with his claim elsewhere in his report that the Bundle had no effect on consumer choices.<sup>560</sup> If his no-effect were true, then the Bundle could by definition not increase Sanofi sales across different vaccines in a way that would achieve economies of scope. It is economically inconsistent to simultaneously claim that the Bundle does not affect customer behavior (when trying to dismiss anticompetitive effects) and that the Bundle affects customer behavior in a way that increases sales across multiple products (when trying to claim procompetitive efficiencies).

***C. Professor Rubinfeld Fails to Refute My Analysis Showing that the Bundle Has No Procompetitive Efficiencies***

333. Part VI.C of Professor Rubinfeld’s report disputes my affirmative showing that Sanofi’s Bundle had no procompetitive benefits because it imposed penalties rather than lowered prices and was added for anticompetitive reasons only after Sanofi learned Menveo would enter. He claims that I ignored other features of Sanofi’s contracting platform, that I did not analyze the relevant time frame, that Sanofi testimony and documents show procompetitive effects, and that the imposition of the Bundle only after learning of Menveo entry does not disprove

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<sup>560</sup> See *infra* Part V.

the existence of procompetitive benefits. I show why he is wrong about each of these four points in turn.

*1. Contracting Changes Unrelated To the Bundle Are Irrelevant To This Case*

334. Professor Rubinfeld first criticizes me for only focusing on the Bundle instead of considering the “contract changes more broadly.”<sup>561</sup> But my focus is on precisely the relevant inquiry: one must examine whether there are procompetitive benefits driven *specifically by the Bundle*. I noted earlier in this report that Professor Rubinfeld fails to explain the economic relevance of contracting changes that are independent of the Bundle. Changes that would have occurred with or without the addition of the Bundle cannot be considered procompetitive benefits of the Bundle.

*2. My Analysis Focuses On the Relevant Time Frame for Determining Competitive Effects*

335. **a. Sanofi Did Not Provide Lower Upfront Prices or Higher Administrative Fees or Rebates in Exchange for Adding the Bundle.** Professor Rubinfeld claims that “Sanofi’s new contracting platform introduced many changes that benefited its customers, including lower up-front prices and increased rebates to systems.”<sup>562</sup> Although Professor Rubinfeld’s report repeatedly mischaracterizes the difference between Sanofi’s vaccine list prices and contract prices as an “up-front discount”, Professor Rubinfeld has never actually established that up-front contract prices were reduced when the Bundle was added. Indeed, in the very next paragraph Professor Rubinfeld states that it is “not surprising that Sanofi did not necessarily need to change its Menactra prices prior to Menveo entry,”<sup>563</sup> an admission that Menactra prices were *not* lowered at the time Sanofi introduced the Bundle.

336. Professor Rubinfeld also claims that it is wrong to look at whether Sanofi changed prices when it added the Bundle because Menactra was still the only MCV4 vaccine at the time.<sup>564</sup> But this reasoning makes no sense. If the Bundle actually produced cost-reducing efficiencies that were passed on to

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<sup>561</sup> Rubinfeld Report ¶264.

<sup>562</sup> Rubinfeld Report ¶265.

<sup>563</sup> Rubinfeld Report ¶266.

<sup>564</sup> Rubinfeld Report ¶266.

consumers, then adding the Bundle should lower prices even during the period when Sanofi enjoyed an absolute monopoly. Nor does Professor Rubinfeld dispute my showing that Sanofi added the Bundle specifically in response to pending competition from Menveo, so clearly Sanofi then had incentives to set the bundled prices in a way that anticipated that competition.<sup>565</sup> Professor Rubinfeld also provides no evidence that the Bundle lowered prices after Menveo entered, which in fact is contradicted by the evidence that Menactra prices actually rose even higher over time.<sup>566</sup>

337. **b. Professor Rubinfeld Deceptively Claims that the Bundle Did Not Impose Any Price Penalty on Menactra Disloyalty.** Professor Rubinfeld claims it was “misleading” for me to show in Figure 9 of my merits report that if Pediatric Federation customers refused to commit to the new Menactra loyalty condition, their Sanofi pediatric prices would increase.<sup>567</sup> In reality, my Figure is perfectly accurate and not remotely misleading. It demonstrates precisely that the change created by Sanofi’s Bundle was that a PBG member who did not commit to Menactra loyalty would now have to pay higher pediatric prices than before because that member would now have to pay the penalty no-contract price rather than the lower PBG contract price it used to pay.

338. Professor Rubinfeld’s claimed “correction” to my figure 9 is not a correction at all, but rather a fundamental change in the analytical question my figure was addressing from whether Menactra disloyal customers faced higher pediatric prices after the Bundle (my question) to the question of whether the Bundle changed contract and non-contract price levels (Dr. Rubinfeld’s question). This is easily discernable from the fact that *Professor Rubinfeld has altered the x-axis labels* from my Figure 9 in his Exhibit 21-1; my Figure compares “Accepted Menactra loyalty” to “Refused Menactra loyalty” whereas his Exhibit compares “Contract Price” to “Non-Contract Price.”<sup>568</sup> So Professor Rubinfeld did not “correct” my analysis, but rather tried to change the topic to a red herring that is unrelated to the change created by the Bundle.

339. By changing the topic, Professor Rubinfeld misleadingly suggests that the Bundle did not change prices for anyone. He states that his chart “shows that

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<sup>565</sup> Elhauge Merits Report ¶5.

<sup>566</sup> Elhauge Merits Report ¶236-237.

<sup>567</sup> Rubinfeld Report ¶¶267-269.

<sup>568</sup> Compare Elhauge Merits Report Figure 9 to Rubinfeld Report Exhibit 21-1.



members of the Pediatric Federation faced the same contract prices before and after the roll-out of Sanofi's new contracting platform. Non-contract customers also faced the same non-contract prices before and after the contract roll-out."<sup>569</sup> His chart and statement are misleading because adding the Bundle meant that Pediatric Federation members who refused to commit to Menactra loyalty *no longer faced the lower contract prices*, but instead *now faced the higher noncontract prices*. The fact that the contract and noncontract price levels were the same does not alter the fact that the Bundle changed who was eligible for contract prices, so that Menactra disloyal customers, i.e., those converting to Menveo, would be confronted with a switch from the contract price to the higher non-contract price. The undeniable reality is thus that the Bundle threatened higher pediatric prices to Menactra disloyal customers, rather than keeping them the same. This price penalty is accurately illustrated by my Figure 9, but masked by his Exhibit 21-1.

340. To illustrate the misleading nature of Professor Rubinfeld's characterization of the facts, consider the following hypothetical. Suppose a municipality formerly levied no fine on jaywalkers but imposed a \$100 fine on speeders. Subsequently, the town changed the law to add a \$100 fine on jaywalking. My approach would accurately show that the government has added a new \$100 penalty on jaywalking. Under Professor Rubinfeld's approach, he would instead say that there was no increase in fine on anyone because non-violators faced the same \$0 fine before and after the legal change, and violators faced the same \$100 fine before and after the legal change as well. It is quite clear that such a statement would misleadingly mask the reality that the definition of a violator changed in a way that imposes a new penalty on jaywalkers that did not previously exist. Likewise, here, Professor Rubinfeld's chart and statement misleadingly masks the reality that the definition of who is eligible for the contract price was changed in a way that imposed a new penalty on Menactra disloyalty that did not previously exist.<sup>570</sup>

341. **c. The Time Period Around Menveo Entry Does Not Support Professor Rubinfeld's Procompetitive Efficiency Claims Either.** Professor Rubinfeld next asserts that "the proper time at which to evaluate whether Sanofi's

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<sup>569</sup> Rubinfeld Report ¶ 268.

<sup>570</sup> Professor Rubinfeld repeats his mischaracterization and false claim that my analysis was misleading for other tables and charts in Rubinfeld Report ¶ 269 & Exhibits 21-2, 22-1 and 22-2.

contracts reduced prices is not only when the contract platform was rolled out, but also following Menveo's entry" when he claims that "Sanofi held off some price increases that it planned to implement. More generally, Sanofi's contract prices increased at a slower rate relative to the pre-entry period. Thus, Sanofi's contract prices fell below the levels that would have prevailed in the absence of Menveo's entry."<sup>571</sup> I have already explained that Professor Rubinfeld is wrong that the proper time to examine whether adding the Bundle lowered prices is when Menveo actually entered rather than when the Bundle was adopted. Moreover, even if one focuses on the time following Menveo entry, Professor Rubinfeld's conclusion here is irrelevant to whether the Bundle lowered prices. His only claim here is that *Menveo's entry* prevented Sanofi from increasing prices as much as it otherwise would have. That does not show that the *Bundle* lowered prices or even that the Bundle slowed down an increase in prices. Thus, his statement here is not even relevant to whether the Bundle had any procompetitive efficiency.<sup>572</sup> Further, because Menveo would clearly have entered in the but-for world without any Bundle, his claim that Menveo entry slowed down price increases (even if true) is also not relevant to whether the Bundle had an anticompetitive impact.

### *3. Sanofi's Documents and Testimony Do Not Even Purport to Show How the Bundle Had Procompetitive Benefits*

342. Professor Rubinfeld claims that Sanofi's documents discuss how Sanofi's contracts offer the opportunity to earn discounts, provide a vehicle to reduce prices, and also claims that they show that Sanofi recognizes the need to provide additional discounts, lower prices, or flexibility to various types of customers.<sup>573</sup> However, as previously explained, the Bundle did not offer any true discounts.<sup>574</sup> Any "discounts" were measured against artificially inflated penalty prices and thus were sham discounts rather than true discounts from but-for prices, as Professor Rubinfeld's own academic writing recognizes.

343. Furthermore, none of the documents cited by Professor Rubinfeld speaks to how customers will save money *due to the Bundle* specifically; the documents do not focus on the mechanism conditioning the prices of other

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<sup>571</sup> Rubinfeld Report ¶270.

<sup>572</sup> Elsewhere in this report, I also show that the Bundle did not cause Sanofi to forgo any price increases that otherwise would have occurred following Menveo's entry. *See infra* Part VII.

<sup>573</sup> Rubinfeld Report ¶271.

<sup>574</sup> *See* Elhauge Merits Report ¶¶135-146; *supra* Part III.B.1.

vaccines on Menactra loyalty. Neither the cited documents nor Professor Rubinfeld provide any evidence or reasoning to show that the discounts could not have been provided without the Bundle. The cited documents also do not state that the contracts were structured to achieve any efficiencies, but rather say they were given in order to obtain customer commitments to brand loyalty and to protect the existing business from rival competition, which are anticompetitive effects, not efficiencies.

344. None of the documents cited by Professor Rubinfeld mentions reducing uncertainty, improving production planning, enhancing risk-sharing, spreading fixed costs, or spreading common costs. So the very documents and testimony that Professor Rubinfeld claims demonstrate the procompetitive nature of Sanofi's contracts are silent on all of the procompetitive benefits alleged by Professor Rubinfeld. And Professor Rubinfeld does not even deny that not a single Sanofi contemporaneous business record discusses or quantifies any potential cost savings generated by the Bundle, which would be necessary for Sanofi to determine how to pass any purported savings on to vaccine customers. Thus, even if one were to erroneously assume that the Bundle allowed Sanofi to reduce its costs, there is no dispute that Sanofi never actually took steps to pass these cost savings on to customers—a necessary precondition of a procompetitive benefit.

345. Professor Rubinfeld also claims that I mischaracterize or omit relevant parts of the internal Sanofi documents that I cited to demonstrate Sanofi's anticompetitive motives for imposing the Bundle.<sup>575</sup> His claim primarily focuses on the fact that some of the documents I cite also claim that Sanofi's Bundle offered “discounts” or “benefits.” But I have repeatedly demonstrated that such claimed discounts or benefits were shams (in precisely the sense that Professor Rubinfeld recognizes in his academic work) because they were measured against the economically erroneous baseline of the inflated penalty price.<sup>576</sup> In contrast, the other parts of these Sanofi's documents that I cited clearly indicate anticompetitive aims like the fact that the Bundle “insulates us [Sanofi] from competition” and “will lock-in business.”<sup>577</sup>

346. In fact, Professor Rubinfeld's only response to the most telling document—the one showing that one aim of the Bundle was to raise “the customer

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<sup>575</sup> Rubinfeld Report ¶272.

<sup>576</sup> See Elhauge Merits Report ¶¶135-146; *supra* Part III.B.1.

<sup>577</sup> Rubinfeld Report n.351 (quoting some documents that I cite).

costs of switching” by “increasing list price and the contract discount” and “not necessarily a net price change”—is to claim that the “November 2009 document refers to competition with GSK, and pre-dates Menveo’s entry.”<sup>578</sup> That is a hollow response given that (1) the document title includes the phrase “Positioning Ourselves for 2010”<sup>579</sup> (the year Menveo entered), (2) Sanofi was well aware of Menveo’s impending entry by November 2009,<sup>580</sup> and (3) the document mentions Menactra several times, which is a vaccine that GSK did not compete against at that time.<sup>581</sup> Professor Rubinfeld has no answer to the obvious truth that Sanofi intended to implement sham discounting in its contracts as a key part of the Bundle.

347. Professor Rubinfeld also argues that I did not present any evidence that Sanofi increased Menactra list prices in response to Menveo entry.<sup>582</sup> But increasing the Menactra list price is not how Sanofi imposed its bundled penalty on Menactra disloyalty, and I never claimed it was. Rather, as I showed, Sanofi imposed the bundled penalty by increasing Sanofi pediatric vaccine prices on buyers who refused to make a Menactra loyalty commitment. Further, that bundled penalty was imposed not by increasing any list price, but rather by making Menactra disloyal buyers ineligible for contract prices and eligible for only the higher list prices on pediatric vaccines.

#### *4. The Addition of Bundle Only in Response to Competition Does Suggest Anticompetitive Motivation*

348. Professor Rubinfeld argues that the fact that the Bundle was imposed in anticipation of Menveo entry is irrelevant because it simply means that Sanofi responded to competition, which according to him could just as easily be procompetitive.<sup>583</sup> But his argument ignores that if imposing a bundled loyalty commitment really created cost savings, then Sanofi would have had incentives to adopt such a condition even without an MCV4 competitor on the horizon. For example, suppose (contrary to fact) that a bundled loyalty commitment allowed Sanofi to reduce production uncertainty, and that such reduced uncertainty reduced Sanofi’s costs. If that were true, then a bundled loyalty commitment would have

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<sup>578</sup> Rubinfeld Report ¶272.

<sup>579</sup> SP 00496642.

<sup>580</sup> See Elhauge Merits Report ¶5 n.3.

<sup>581</sup> See SP 00496642-48.

<sup>582</sup> Rubinfeld Report ¶272.

<sup>583</sup> Rubinfeld Report ¶273.

generated these benefits even without the prospect of Menveo entry. Sanofi should thus have wanted to impose the Bundle long before it learned of Menveo, because otherwise it would have irrationally been forgoing these supposed cost savings. Conversely, the fact that Sanofi did not see a benefit to imposing the Bundle prior to learning about Menveo indicates that the Bundle did not really produce the alleged cost savings.

349. This logic does not, as Professor Rubinfeld argues, lead one to conclude that any response to increasing competition is inherently anticompetitive because there are many responses that are *only* rational in the face of increased competition, such as a monopoly lowering its monopoly price to a duopoly price in response to an entrant. But in the present case the alleged procompetitive benefits would have been equally applicable without an MCV4 competitor. Thus, one can readily conclude that either Sanofi would have imposed the Bundle long before Menveo's entry to realize those benefits or that Professor Rubinfeld is wrong about the existence of those benefits.

***D. The Alleged Prevalence of “Multi-Product Loyalty Discounts” in the Vaccine Industry Does Not Indicate the Bundle is Procompetitive***

350. Part VI.D of Professor Rubinfeld's report claims, “Almost all major manufacturers in the vaccine industry, including Novartis and GSK, have adopted some form of multi-product loyalty discounts,” and he argues that this indicates bundled loyalty discounts on vaccines must be generally procompetitive.<sup>584</sup> However, he provides little evidence to support his premise, and he is wrong that his premise would justify his conclusion.

351. Professor Rubinfeld provides no evidence that “almost all” vaccine manufacturers used bundled loyalty discounts. The only examples he points to are just two firms, Novartis and GSK, and the evidence he points to affirmatively indicates that Novartis did not use bundled loyalty discounts and fails to establish that GSK did, much less that Novartis or GSK used bundled loyalty commitments and penalties like Sanofi did here.

352. For Novartis, Professor Rubinfeld argues that it has “customer loyalty program,” with customers earning points on any Novartis products, which he says means that discounts on Menveo “depend[] at least in part on how much non-

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<sup>584</sup> Rubinfeld Report ¶¶274-275.



Menveo volume a customer buys from Novartis.”<sup>585</sup> But Professor Rubinfeld’s own description makes it obvious that Novartis runs a volume-based program, not a share- or exclusivity-based program, so it cannot qualify as a bundled loyalty discount. Nor does it really have a bundling condition because the fact that a customer can earn points on “any” Novartis product means that a customer could purchase sufficient Menveo volume to receive the maximum possible discount, without being required to buy any other vaccines from Novartis. Professor Rubinfeld’s more detailed description of Novartis’ pricing earlier in his report also shows that none of Novartis’ vaccine prices depends on loyalty in other vaccines.<sup>586</sup> For example, a PBG whose members purchase 50,000 doses of any one vaccine can attain the highest possible discount tier, and an individual customer that purchases 250 doses of Menveo, *or* 2500 doses of Fluvirin, *or* 125 doses of Ixiaro will qualify for the largest discount in the Novartis Elite program, without having to buy any other Novartis vaccine.<sup>587</sup> The fact that Novartis’ program is a pure volume discount program makes it much less restrictive than the bundled loyalty commitment that Sanofi imposes. The fact that Novartis doesn’t use Sanofi’s type of restraining bundle also suggests that Sanofi’s Bundle is *not* procompetitive because if restraining bundling were procompetitive, then even firms without market power, like Novartis, would do it.

353. Professor Rubinfeld notes that Novartis “paid PBGs or IHNs administrative fees and market share rebates,”<sup>588</sup> but omits the fact that the Novartis documents he cites actually show that Menveo’s price structure was distinctly unlike the Bundle. Unlike the Bundle, Menveo’s administrative fees were not conditioned on loyalty in any way.<sup>589</sup> Further, Menveo’s “Market share rebate” (conditioned on customers buying 90% of their MCV4 from Menveo) was both tiny (only a 2% discount, compared to Novartis’s 8-12% discounts for PBGs and IHNs<sup>590</sup>) and unbundled (it was conditioned only on Menveo loyalty). Professor Rubinfeld also provides zero evidence that Novartis ever used loyalty commitments and penalties like Sanofi did here.

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<sup>585</sup> Rubinfeld Report ¶276.

<sup>586</sup> See Rubinfeld Report ¶¶93-95.

<sup>587</sup> See Rubinfeld Report ¶¶93-94 at nn.153, 155.

<sup>588</sup> Rubinfeld Report ¶97, citing [REDACTED]

[REDACTED].

<sup>589</sup> [REDACTED]

<sup>590</sup> [REDACTED]

354. As for GSK, Professor Rubinfeld claims that GSK uses multi-product loyalty discounts because it gives favorable terms “as long as the PBG maintains at least an 80% aggregate market share on any two of three vaccine classes offered by GSK.”<sup>591</sup> Although his evidence indicates that GSK is engaged in bundling that may well be anticompetitive, he fails to present evidence that GSK is engaged in the same sort of bundled loyalty commitments with penalties as Sanofi. His description states that the three vaccine classes included 11 vaccines, and thus fails to show that (unlike here) the price of any one vaccine is contingent on a loyalty benchmark in a different vaccine market.<sup>592</sup> His own description indicates that the GSK bundle required no affirmative commitment on any vaccine, unlike Sanofi’s bundled loyalty commitment for Menactra. Professor Rubinfeld’s description also indicates that GSK provided discounts, which is the opposite of the penalties imposed by Sanofi here.

355. Even if one assumed for the sake of argument that GSK did use bundled loyalty commitments and penalties rather than discounts, that would have no bearing on whether bundling is generally procompetitive in vaccine markets. To begin with, GSK likely has market power in some vaccine markets, and so its own bundling might easily be anticompetitive. For example, GSK’s Hepatitis vaccines are part of the multi-product loyalty discount scheme that Professor Rubinfeld claims GSK uses.<sup>593</sup> The IMS DDD data provided by Professor Rubinfeld shows that, among private purchasers during the relevant time period for data analysis in this case (March 2010 to August 2013), GSK had a 59% market share in vaccines for Hepatitis A, and a 67% share in vaccines for Hepatitis B, with only one other manufacturer (Merck) manufacturing vaccines for each of those diseases.<sup>594</sup> The Hepatitis vaccine markets also have high barriers to entry and expansion, such as the enormous cost of developing a new vaccine, and the general economies of scale in the vaccine industry.<sup>595</sup> Accordingly, if GSK really has used bundled loyalty commitments and penalties, Professor Rubinfeld does nothing to rule out the possibility that this is an anticompetitive restraint given GSK’s high market shares coupled with barriers to entry and expansion.

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<sup>591</sup> Rubinfeld Report ¶¶277.

<sup>592</sup> Rubinfeld Report ¶¶277 & n.358.

<sup>593</sup> Rubinfeld Report ¶¶277 n.358.

<sup>594</sup> “MRebut23 ddd priv share 4-2010 to 8-2013.xlsx”

<sup>595</sup> See *supra* Part I.B.2.

356. Furthermore, any bundling by GSK is likely in response to Sanofi's anticompetitive bundle, which would also mean the mere existence of a GSK bundle could not prove vaccine bundling procompetitive. One simply cannot draw any conclusions about GSK's bundles without proper economic data and analysis.

357. In short, Professor Rubinfeld fails to show that any vaccine maker other than Sanofi used the sort of bundled loyalty commitments with penalties that are imposed here by Sanofi. Nor does Professor Rubinfeld show any bundling program by any vaccine maker without market power.<sup>596</sup> Even if he had shown that other vaccine makers with market power used bundled loyalty programs, their market power might allow them to impose anticompetitive bundles and he provides no evidence to indicate their bundles were procompetitive rather than anticompetitive. There is thus no basis for assuming that any bundling by other vaccine makers was generally procompetitive. Moreover, even if one were to assume without evidence that some of these other bundles are procompetitive, that does not make the Bundle at issue in this case procompetitive, where no evidence of procompetitive efficiencies has been provided. The terms of the bundles and the market conditions may differ for the other vaccine manufacturers.

358. Professor Rubinfeld also notes that Sanofi uses VaxMax discounts, but those are volume-based discounts, not bundled loyalty discounts; they are based on the "number of doses" and "number of Sanofi vaccines" (not any loyalty condition).<sup>597</sup> Thus, instead of demonstrating that bundling is procompetitive, the existence of VaxMax discounts actually demonstrates that Sanofi is capable of implementing an alternative that is substantially less restrictive to bundled loyalty commitments and that would satisfy any supposed distribution efficiencies. This type of volume-based discount thus supports my conclusion that the Bundle is anticompetitive.

359. Professor Rubinfeld also states that Sanofi has previously used or currently uses other bundled loyalty commitments other than the Bundle at issue in

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<sup>596</sup> Although Professor Rubinfeld does not claim that Merck uses bundled loyalty terms, even Merck has a 99% share in HPV vaccines, 86% share in Rotavirus vaccines, 100% share in Varicella vaccines, and 100% share in MMR vaccines. "MRbut23 ddd priv share 4-2010 to 8-2013.xlsx". Thus, even if Merck used bundled loyalty terms, that would not show such terms are procompetitive given that Merck likely has sufficient market power to anticompetitively restrain customers.

<sup>597</sup> Rubinfeld Report ¶279.

this case, and argues that I have alleged “only” that the Bundle is anticompetitive without drawing any distinctions from these other Sanofi contracting practices.<sup>598</sup> However, I am offering no opinion on whether any alleged bundling by Novartis, GSK, or Sanofi outside of the Bundle, are anticompetitive. That is not part of my assignment in this case. As a matter of economics, it is erroneous to conclude that a lack of economic analysis about other bundles somehow affirmatively indicates that they are procompetitive rather than anticompetitive. It even more improper economics to conclude that this inference from a lack of analysis justifies the further inference that this Bundle was procompetitive, even though it was the subject of economic analysis and data that indicates precisely the opposite.

#### **IV. MY MARKET DIVISION THEORY IS ECONOMICALLY SOUND**

360. My opening merits report explained that “The economic literature mathematically proves that loyalty conditions like those used in the Bundle can create market divisions that anticompetitively inflate prices.”<sup>599</sup> Part VII.A of Professor Rubinfeld’s report disputes both the validity of the market division theory and its applicability to the vaccine markets in this case. However, Professor Rubinfeld’s arguments are based on a selective review of the academic literature and a flawed understanding of the economics of market division through loyalty conditions.

361. Professor Rubinfeld begins his discussion of the market division theory by erroneously arguing that it does not depend on substantial foreclosure and therefore is in stark contrast to what he terms “standard foreclosure-based theory.”<sup>600</sup> Contrary to Professor Rubinfeld’s characterization, the theory of harm caused by market division is not independent of the foreclosure created by loyalty contracts: as I note in my opening merits report, foreclosure drives the market-dividing effect by gutting Novartis’s ability to compete for restrained customers and therefore gutting its incentives to lower prices to them as well, which in turns keeps Menactra prices elevated for restrained customers and unrestrained

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<sup>598</sup> Rubinfeld Report ¶278, 280.

<sup>599</sup> Elhauge Merits Report Part V.A.

<sup>600</sup> Rubinfeld Report ¶282.

customers, reducing Novartis's incentives to lower Menveo prices to restrained and unrestrained customers as well.<sup>601</sup>

362. Not only is Professor Rubinfeld's analysis of market division theory erroneous, but also his analysis addresses only the initial market division model I presented in one of my 2009 articles, ignoring the more comprehensive model that was proved with my co-author Professor Wickelgren in a 2015 article (which I also referenced and cited in my opening report). After listing three articles that support the market division theory,<sup>602</sup> Professor Rubinfeld states in a footnote that he will "focus on Professor Elhauge's model in (2009a)."<sup>603</sup> Yet in the next sentence of that same footnote he recognizes that the 2015 article "refined the model in Elhauge (2009a) and purport[s] to prove the basic results in Elhauge (2009a) under more general conditions."<sup>604</sup> His decision to focus only on the market division model from Elhauge (2009a) is thus unjustifiable. He often criticizes the 2009 article for requiring restrictive assumptions even though he has intentionally chosen not to address more recent literature that, by his own admission, generalizes the model's results.

363. For example, Professor Rubinfeld challenges the assumption in my 2009 model that the incumbent firm and the entering rival "produce the same homogenous product" and "engage in myopic Bertrand price competition."<sup>605</sup> Professor Rubinfeld notes that an assumption of undifferentiated Bertrand competition is "extreme" and results in a "strained" conclusion that a duopoly

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<sup>601</sup> Elhauge Merits Report Part V.E.5. ("The more of the market that is restricted, the more likely the conduct is to impair rival competitiveness and the more likely an effective market division would be profitable to Sanofi."); Elhauge Merits Report ¶¶156-157 (explaining that this market dividing effect will inflate prices for both restrained and unrestrained buyers).

<sup>602</sup> Professor Rubinfeld claims that the economic literature I reference to show how loyalty contracts divide markets "primarily rests on three papers [I] authored or co-authored." Rubinfeld Report ¶294. This misleadingly omits the additional support I cite from Professors Joseph Farrell and Michael Salinger. See Elhauge Merits Report Part V.A. I address Professor Rubinfeld's erroneous contention that the works of Professors Farrell and Salinger do not support the market division theory *infra* Part IV.A.

<sup>603</sup> Rubinfeld Report ¶285 n.366. Professor Rubinfeld uses "Elhauge (2009a)" to refer to the following article: Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189 (2009).

<sup>604</sup> Rubinfeld Report ¶285 n.366. The 2015 article is Elhauge & Wickelgren, *Robust Exclusion and Market Division Through Loyalty Discounts*, 43 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 111 (2015).

<sup>605</sup> Rubinfeld Report ¶¶285, 287.



results in the same prices as perfect competition in the absence of loyalty conditions.<sup>606</sup> As I have previously explained in this case, this critique of my 2009 article is misplaced because assuming such a hypercompetitive market meant that my 2009 model conservatively **understated** the likely anticompetitive effects with imperfect competition, such as in a differentiated market like the MCV4 market.<sup>607</sup> Professor Rubinfeld does not dispute this but rather simply ignores the point. In any event, even if one thought this were a valid critique of my 2009 article, it is clearly an invalid critique of current market division theory because my 2015 article with Professor Wickelgren mathematically proved that in a differentiated market the same sort of anticompetitive market division would occur and is more likely to produce a stable pure strategy equilibrium.<sup>608</sup> In other words, it proved precisely what I said earlier: that differentiation would only increase the likelihood of anticompetitive effects. Professor Rubinfeld's ignores this because he intentionally focused only on the 2009 article to the exclusion of the more general 2015 model.<sup>609</sup>

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<sup>606</sup> Rubinfeld Report ¶287.

<sup>607</sup> Elhauge (2009a) at 221 (“the anticompetitive effects predicted above are **understated** because of the extreme assumption of Bertrand competition... If we made more realistic assumptions of imperfect competition, loyalty discounts would be **more likely** to both (a) create **adverse effects** on rival competitiveness and (b) lead to anticompetitive equilibria. Point (a) would be true **if**, for example, one more realistically assumed ... **differentiated demand**... Point (b) would be true if ... if we assumed that firms either operate on a **differentiated market**, view competition as a multi-period game with no fixed endpoint (and thus coordinate on uncommitted prices), or that expanding output requires advance planning so that firms pick outputs rather than price (and thus engage in Cournot or Stackelberg competition).”); Elh. Dep. 367 (“the [earlier] articles are conservatively assuming an undifferentiated market, which makes it more difficult to have anticompetitive effects. This market [MCV4] obviously is differentiated, which makes anticompetitive effects easier”).

<sup>608</sup> Elhauge & Wickelgren (2015) at 115 & n.18 (proving that, while the equilibrium in an undifferentiated market can require a mixed strategy when the foreclosure share is sufficiently low, “if the entrant and incumbent had sufficiently differentiated products, then there would be a pure strategy pricing equilibrium” and that the result “that the loyalty discount softens competition... will occur in a pure strategy equilibrium with differentiated products as well.”).

<sup>609</sup> Professor Rubinfeld also claims in a footnote that “The problems with using a myopic Bertrand model exist whether products are differentiated or undifferentiated.” Rubinfeld Report ¶287 n.370. However, the only other problem he identifies is that the Bertrand models relied upon by market division theory “do not take into account their rivals’ future reactions when setting prices in the current period.” Rubinfeld Report ¶287. I have already shown, in Part VII.A.3. of my opening merits report, that in this market such multi-period price coordination is implausible and demonstrably did not occur, and I further address Professor Rubinfeld’s mistaken claims to the contrary *infra* at Part. Moreover, even if one wrongly assumes such coordination did occur in the MCV4 market, that would not be a valid reason to deem market

364. Professor Rubinfeld rehashes another Sanofi misconception about how loyalty contracts can anticompetitively divide markets by alleging that the “assumption that the rival cannot price discriminate” is central to my analysis.<sup>610</sup> This is plainly false and ignores my explanation that market division theory does not require any rival inability to price discriminate when bundled penalties are below cost or there is a buyer commitment.<sup>611</sup> Under these conditions, a rival’s ability to set different prices for different customers does not allow it to overcome a market division because the rival still cannot compete for loyal customers. With below-cost bundled penalties, the rival would need to price below cost to compete for the loyal customers, which would be economically irrational. And with buyer commitments, loyal buyers are restrained from switching to the rival even if it can offer prices that overcome the bundled penalties.

365. Professor Rubinfeld incorrectly claims that my co-author, Professor Wickelgren, stated that the entrant’s inability to price discriminate was a necessary condition for the relevance of market division theory.<sup>612</sup> The source Professor Rubinfeld cites to for this proposition makes it abundantly clear that Professor Wickelgren was discussing a market division model, unlike here, *without buyer commitment and without Bundling* when he laid out this condition. All of Professor Rubinfeld’s citations are to where Professor Wickelgren discussed the application of the model to cases with “No buyer commitment.”<sup>613</sup> The preceding page of Professor Wickelgren’s discussion discusses the “Conditions for Relevance” of a model with buyer commitment, and it *correctly omits* “Entrant can’t price discriminate” as a condition.<sup>614</sup> The Sanofi contracts in this case do involve buyer commitments,<sup>615</sup> as well as bundled penalties that enforce them, and so the relevant market division theory does not require the assumption that the rival

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division theory inapplicable because “loyalty discounts would be **more likely** to ... lead to **anticompetitive** equilibria ... **if** we assumed that firms... view competition as a multi-period game with no fixed endpoint (and thus **coordinate** on uncommitted prices)”. Elhauge (2009a) at 221.

<sup>610</sup> Rubinfeld Report ¶289.

<sup>611</sup> Elhauge Merits Report ¶¶182-184.

<sup>612</sup> Rubinfeld Report ¶289.

<sup>613</sup> Abraham Wickelgren, *Thinking about Loyalty Discounts*, DOJ and FTC Public Workshop at 12 (June 23, 2014 PowerPoint Presentation).

<sup>614</sup> *Id.* at 11.

<sup>615</sup> See Elhauge Merits Report ¶¶104-110 (PBG commitments); *id.* ¶¶116-119 (4P system commitments).

cannot price discriminate. Professor Wickelgren's comments were also about single-product loyalty conditions, not bundled loyalty conditions.<sup>616</sup> Bundled loyalty conditions make it "easier to procure and enforce buyer agreements to loyalty discounts,"<sup>617</sup> which in turn makes it even harder for a rival to compete for loyal buyers through price discrimination.

366. Professor Rubinfeld complains that the 2009 article he focuses on addressed only single-product loyalty conditions, rather than bundled loyalty conditions like those at issue here.<sup>618</sup> However, as I stated in another article, the analysis of how loyalty conditions weaken incentives to compete "is equally true if the loyalty discount is bundled with a discount on another product. Indeed, bundling makes it easier to procure and enforce buyer agreements to loyalty discounts that discourage discounting."<sup>619</sup> Professor Rubinfeld cites this same passage but incorrectly dismisses it as a "conclusory" assertion that fails to "analyz[e] bundled rebates in the context of an expanded economic model."<sup>620</sup> However, there is nothing "conclusory" about a logical extension: Professor Rubinfeld offers no response to the simple logic that bundling only makes the anticompetitive effects of market division worse by helping to enforce the loyalty commitments with extraneous penalties on other products.

367. After framing his discussion of the market division theory with the general misconceptions that I have just discussed, Professor Rubinfeld then elaborates upon his criticisms by arguing that market division theory: (1) has not gained general acceptance in the literature; (2) establishes only the theoretical possibility of anticompetitive effects; (3) inappropriately assumes single-round Bertrand competition; (4) relies on the use of mixed strategies by sellers; and (5) does not fit with aspects of the vaccine industry. I demonstrate why each of these arguments is wrong in the following sections.

368. Two general problems apply to all of his arguments against market division theory. First, his arguments that a bundled loyalty conditions like this one

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<sup>616</sup> See Abraham Wickelgren, *Thinking about Loyalty Discounts*, DOJ and FTC Public Workshop at 4 (June 23, 2014 PowerPoint Presentation).

<sup>617</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 460 (2009).

<sup>618</sup> Rubinfeld Report ¶290.

<sup>619</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 460 (2009).

<sup>620</sup> Rubinfeld Report ¶290 n.374.

cannot divide a market, or that the necessary market conditions for them to do so rarely apply, conflict with the contemporaneous business documents of Sanofi and Novartis. Those documents indicate that Sanofi designed the Bundle to divide the market in a way that increased prices in the MCV4 market and that both Sanofi and Novartis concluded that the Bundle succeeded in having precisely that effect under MCV4 market conditions.<sup>621</sup>

369. Second, his argument here that loyalty conditions cannot divide markets contradicts his claim elsewhere in his report that, without the Bundle challenged here, the separate bundled pediatric loyalty condition and the single-product Menactra loyalty condition *already* divided the MCV4 market.<sup>622</sup> He makes that claim there to try to show that the Bundle did not create any incremental harm over the market division that already existed, which is wrong for factual reasons discussed below.<sup>623</sup> But the important point here is that because he makes that claim there, he must actually agree that bundled and unbundled loyalty conditions *can* anticompetitive divide markets, which is precisely what I said my market division theory shows.

***A. The Market Division Theory Has Support Among Other Academics and in the Facts of this Case***

370. Professor Rubinfeld argues that the District Court was mistaken when it rejected Sanofi's argument that my market division theory has not gained general acceptance in the antitrust literature.<sup>624</sup> However, the Court was correct that the market division theories articulated in my articles "are not mere fringe theories. Professors Salinger and Farrell, both former directors of the Federal Trade Commission's economics department, have cited [my] theories with approval."<sup>625</sup> Further, my co-author Professor Wickelgren has independently verified and generalized a proof of my theory in the article we co-authored, and he is a Ph.D economist and chaired professor at the University of Texas who also has not been involved in this litigation at all.

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<sup>621</sup> Elhaug Merits Report Part V.B & V.C.

<sup>622</sup> Rubinfeld Report ¶340.

<sup>623</sup> See *infra* Part V.A.

<sup>624</sup> Rubinfeld Report Part VII.A.1.

<sup>625</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*5 (D.N.J. September 30, 2015) (citing DOJ/FTC Conditional Pricing Practices Workshop (June 23, 2014), available at: [https://ftc.gov/system/files/documents/public\\_events/302251/cpp\\_workshop\\_transcript.pdf](https://ftc.gov/system/files/documents/public_events/302251/cpp_workshop_transcript.pdf)).

371. Professor Rubinfeld claims that the market division theory “predicts substantially different competitive effects than most other economic theories of loyalty discounts.”<sup>626</sup> It is certainly true that, in addition to dividing markets, loyalty discounts can also have other anticompetitive effects. My scholarship has analyzed several of those possible additional anticompetitive effects.<sup>627</sup> But the fact that loyalty discounts can under certain market conditions have additional anticompetitive effects in no way disproves the fact that here the loyalty discounts created an effective market division that raised prices. Nor does Professor Rubinfeld offer any explanation why the fact that loyalty discounts might also have other anticompetitive effects has any bearing on the market division theory’s viability. There is nothing remarkable about the fact that conduct can have different anticompetitive effects under different market conditions.

372. Professor Rubinfeld also claims that “Several scholars have pointed out that the particular form of loyalty discount” analyzed in my market division

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<sup>626</sup> Rubinfeld Report ¶293.

<sup>627</sup> ELHAUGE & GERADIN, *GLOBAL ANTITRUST LAW & ECONOMICS* 517-518, 631-635 (2d ed. 2011)(in addition to dividing markets, loyalty discounts can create all the possible anticompetitive effects of exclusive dealing, including facilitating oligopolistic coordination, creating downstream market power whose supracompetitive profits are split with intermediate buyers, or impairing rival efficiency in markets with economies of scale, learning curve economies, network effects, limits on rival expandability, or if the loyalty discount forecloses the most efficient suppliers or distributors); Elhauge (2009a) at 199-202, 211 (proving that with economies of scale loyalty discounts can also impair rival efficiencies in a way that inflates prices); Elhauge & Wickelgren (2015) at 118 (“This article has shown that loyalty discounts with or without buyer commitment can increase prices and, with buyer commitment, sometimes completely exclude a more efficient entrant. Strikingly, this result is possible under any weakly concave demand curve, without any entry costs or economies of scale, even if the buyers are final consumers (or otherwise have independent demand), and with loyalty discounts that are above cost and cover less than half the market. We prove these results without assuming buyer switching costs, financial constraints, limited rival expandability, or any intra-product bundle of contestable and incontestable demand. Although prior literature suggests that loyalty discounts can have **additional** anti-competitive effects when those conditions exist, this paper proves that loyalty discounts can have important anti-competitive effects even without those market conditions.”); Elhauge, *Defining Better Monopolization Standards*, 56 *STANFORD LAW REVIEW* 253, 282-292, 320-323 (2003)(explaining how loyalty discounts can have anticompetitive effects if there are “(1) efficiencies of scale in production or research, (2) learning curve economies, (3) network effects, or (4) the most efficient distributors or suppliers” or if the loyalty discount creates market power against downstream buyers whose supracompetitive profits are split with intermediate buyers).



theory is “highly unusual,”<sup>628</sup> which he asserts makes it inapplicable to Sanofi’s conduct.<sup>629</sup> However, the feature that he says these scholars say is unusual is having a loyalty discount with a seller commitment that “promise[s] contract buyers that the price they are charged will always be better by a fixed dollar or percentage amount than the price non-contract buyers pay.”<sup>630</sup> These scholars provide no empirical evidence that this feature is uncommon, and my 2015 article with Professor Wickelgren points out that “such seller commitments are common in the health care industry, where dominant suppliers typically contract with hospitals through Group Purchasing Organizations (GPOs).”<sup>631</sup> Moreover, even if this feature does not apply in other cases, it does apply here because Sanofi *did* commit to its loyalty discounts in precisely this manner through its contracts with GPOs and PBGs and its rigid pricing structure.<sup>632</sup> Accordingly, the claim that this feature may not apply in other cases does not alter the applicability of the market division theory to this case.

373. Professor Rubinfeld next claims that the antitrust literature argues that my findings hold even if the loyalty discount amount is zero and that in such cases the effects are essentially the same as those from a most-favored-nation clause.<sup>633</sup> To support this proposition he cites an article by Eilat, et al., which was written by economists who have advanced the interests of antitrust defendants in loyalty discount cases and, in any event, they offered no support for their assertion.<sup>634</sup> Moreover, this claim is irrelevant because here we know the loyalty “discount” (actually penalty) amount was not zero. Further, their claim is clearly inaccurate and simply ignores what the market division theory actually proved about loyalty discounts. As I stated in my 2009 article:

“Loyalty discounts also differ from most-favored-nation clauses, where a seller commits that agreeing buyers will get any lower prices it offers to other buyers. Unlike most-favored-nations clauses, loyalty discounts (1) include a seller commitment to maintain an affirmative

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<sup>628</sup> Rubinfeld Report ¶293.

<sup>629</sup> Rubinfeld Report ¶293.

<sup>630</sup> Rubinfeld Report ¶293.

<sup>631</sup> Elhauge & Wickelgren, *Robust Exclusion and Market Division Through Loyalty Discounts*, 43 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 111, 111 n.1 (2015).

<sup>632</sup> See Elhauge Merits Report Parts III & VIII; see also *infra* Part IV.E.

<sup>633</sup> Rubinfeld Report ¶¶294–295.

<sup>634</sup> Eilat et al., *How Loyalty Discounts Can Perversely Discourage Discounting: Comment*, THE CPI ANTITRUST JOURNAL Vol. 1 (April 2010). Eilat et al. acknowledge that their clients are defendants in loyalty discount cases. *Id.* n.1.

price difference between agreeing and nonagreeing buyers and (2) often involve buyer commitments to buy all or a high share of purchases from the seller. Only when neither factor is present would we have the equivalent of a most-favored nation clause, and in that case I reach different results.... In this case (no commitments and  $d = 0$ ), my model finds no anticompetitive effects because it assumes single period Bertrand competition. Articles on most favored nations clauses have found anticompetitive effects because they assumed oligopolistic coordination, or because they assumed a monopolist selling a durable good that might use such clauses to restrain competition by itself later in time.”<sup>635</sup>

Likewise, Professor Wickelgren and I also disproved this claim in our 2015 article, stating:

Some argue that if loyalty discounts involve seller commitments on pricing, then the analysis is the same as ... most favored nation clauses. ... While ... most favored nation clauses involve seller pricing commitments, they do not involve seller commitments to charge loyal buyers less than other buyers.... Most-favored-nations clauses involve seller commitments to charge agreeing buyers no more than the seller charges other buyers and are not conditioned on loyalty. In contrast, loyalty discounts involve seller commitments to charge loyal buyers affirmatively less than the seller charges other buyers. We find that the profit-maximizing loyalty discount typically exceeds zero. Further, we find that loyalty discounts have anti-

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<sup>635</sup> Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 193 (2009). For loyalty discounts with buyer commitments, I concluded that “buyers would not agree to loyalty commitments unless  $d > 0$ .” *Id.* at 218 n.39. For loyalty discounts without buyer commitments, I concluded that prices would exceed the but-for level only “[a]s long as  $d > 0$ .” *Id.* at 208. Elia et al. are thus simply wrong when they assert without support that “all of the qualitative results in Professor Elhauge’s paper ... hold even if it is assumed that  $d = 0$ .” Elia et al., *supra* note 634, at 7. Elia et al. also complain that my 2009 model analyzed the anticompetitive effects of a given loyalty discount, rather than deriving what the profit-maximizing discount amount would be. *Id.* Again, this claim is irrelevant because here we know the size of the loyalty discount/penalty. Further, the complaint is no longer accurate because my article with Wickelgren does derive the profit-maximizing discount level and shows that it typically exceeds zero for a loyalty discount. Elhauge & Wickelgren, *Robust Exclusion and Market Division Through Loyalty Discounts*, 43 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 111, 113 (2015).

competitive effects under very different conditions than are assumed in the literature on most-favored nation clauses.<sup>636</sup>

374. Professor Rubinfeld also loosely asserts that Eilat, et al. showed my model fails to properly analyze loyalty discounts “in other ways.”<sup>637</sup> However, their other critiques are likewise all either inapplicable here or wrong (and usually both). First, they complained that “The anticompetitive effects of loyalty contracts in the Elhauge model ... disappear if there is more than one entrant competing for the uncommitted buyers.”<sup>638</sup> However, in this case we have precisely one entrant (Novartis) so this criticism is irrelevant. Further, “the same sort of analysis seems likely to apply to the extent only one entrant has a potential cost advantage and the other rivals have higher costs and merely provide a competitive fringe.”<sup>639</sup> Second, they asserted that I am “wrong in claiming that anticompetitive effects are exacerbated when multiple incumbent sellers offer loyalty discounts.”<sup>640</sup> Again, this criticism is irrelevant because here we have only one incumbent seller (Sanofi) offering loyalty discounts. Their criticism is also wrong, as I explain in my article.<sup>641</sup> Third, they claimed that my model assumes away the possibility of renegotiation.<sup>642</sup> Again, the claim is irrelevant because here Sanofi did maintain a rigid pricing structure with only rare deviations.<sup>643</sup> The claim is also wrong because the same result has been proven with simultaneous pricing.<sup>644</sup> Fourth, they claim that my 2009 model analyzed the anticompetitive effects of a loyalty discount with a particular foreclosure share, rather than deriving what the profit-maximizing foreclosure share would be.<sup>645</sup> Again, this claim is irrelevant because here we can directly observe the foreclosure share. Further, the claim is no longer

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<sup>636</sup> Elhauge & Wickelgren, *Robust Exclusion and Market Division Through Loyalty Discounts*, 43 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 111, 113 (2015).

<sup>637</sup> Rubinfeld Report ¶294.

<sup>638</sup> Eilat et al., *supra* note 634, at 6-7.

<sup>639</sup> Elhauge & Wickelgren, *Robust Exclusion and Market Division Through Loyalty Discounts*, 43 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 111, 118 (2015).

<sup>640</sup> Eilat et al., *supra* note 634, at 5-6.

<sup>641</sup> Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 193, 195, 214-15 (2009).

<sup>642</sup> Eilat et al., *supra* note 634, at 7.

<sup>643</sup> See Elhauge Merits Report Part VIII

<sup>644</sup> Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 201-202, 210-11 (2009); Elhauge & Wickelgren, *Robust Exclusion and Market Division Through Loyalty Discounts*, 43 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 111, 114-118 (2015).

<sup>645</sup> Eilat et al., *supra* note 634, at 8.

relevant because my article with Wickelgren does derive the profit-maximizing foreclosure share for a loyalty discount.<sup>646</sup> Fifth, they quibble that in one particular submodel (the one with sequential pricing where the entrant sets prices first in an undifferentiated Bertrand market) there is no “unique equilibrium ... in the but-for world absent loyalty contracts” because the entrant might simply stay out of the market rather than earn the zero profits they could earn by entering.<sup>647</sup> This is again irrelevant in this case whether there is simultaneous pricing in a differentiated market, which is how I modeled the but-for world, and we know Novartis would have entered in the but-for world because it would be profitable and because Novartis planned to enter before Sanofi decided to adopt the Bundle.<sup>648</sup>

375. Professor Rubinfeld then states that Professor Hovenkamp claimed that the “predictions by Professor Elhauge’s model of single-product loyalty discounts depend on ‘highly specific assumptions.’”<sup>649</sup> In fact, Professor Hovenkamp’s statement was the about the *entire* literature on loyalty discounts, rather than some specific critique of my models. He stated, “The literature includes many models showing that such discounting practices can be anticompetitive, but *all* depend on highly specific assumptions.”<sup>650</sup> He then noted that a series of articles by me and many others showed that the specific welfare effects depended, not surprisingly, on specific market conditions.<sup>651</sup> In any event, the substantive point that Professor Rubinfeld quotes from this 2012 Hovenkamp article simply observes that my 2009 model assumed undifferentiated demand, which is irrelevant now that my 2015 article with Professor Wickelgren, has shown that the results hold under differentiated Bertrand competition—the type of competition at issue here.<sup>652</sup>

376. In short, Professor Rubinfeld does not cite any academic literature that claims the market division model fails to demonstrate an anticompetitive effect from loyalty discounts *if the assumptions articulated by the model are true*. The

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<sup>646</sup> Elhauge & Wickelgren, *Robust Exclusion and Market Division Through Loyalty Discounts*, 43 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 111, 113 (2015).

<sup>647</sup> Eilat et al., *supra* note 634, at 8.

<sup>648</sup> Elhauge Merits Report ¶5.

<sup>649</sup> Rubinfeld Report ¶296.

<sup>650</sup> Hovenkamp, *Antitrust and the Cost of Movement*, 78 ANTITRUST LAW JOURNAL 96 (2012) (emphasis added).

<sup>651</sup> *Id.* at 96-97.

<sup>652</sup> *See supra* introduction to Part IV.

literature identified by Professor Rubinfeld has argued, erroneously, that the assumptions of the model do not usually hold or that a loyalty discount of zero would have effects similar to a most favored nation clause. Because the assumed market conditions hold true in this case, and because this case demonstrably does not involve a loyalty discount of zero, these critiques are irrelevant, as well as erroneous. Indeed, the unsupported assertion of these few articles that the conditions for successful market division rarely apply is particularly misplaced in this case, for which contemporaneous business documents indicate that Sanofi designed the Bundle to divide the market in a way that increased prices in the MCV4 market and that both Sanofi and Novartis concluded that the Bundle succeeded in having precisely that effect under MCV4 market conditions.<sup>653</sup>

377. Despite the Court's observation that Professors Salinger and Farrell "cited [my market division] theories with approval,"<sup>654</sup> Professor Rubinfeld erroneously claims that their work does not support the applicability of the market division theory in this case.<sup>655</sup> Professor Rubinfeld claims that Professor Salinger's work differs because it "depends upon competition from an entrant that was unable to compete for the entire market."<sup>656</sup> But that simply assumes one form of differentiated demand, which confirms the conclusion in my 2015 article with Professor Wickelgren that loyalty discounts can divide differentiated markets. Professor Rubinfeld also claims that "Professor Salinger supports using the conventional discount attribution test as a safe harbor for bundled discounts."<sup>657</sup> But this is his *policy position* with respect to antitrust enforcement, which does not alter the *economic support* Professor Salinger's work provides for the market division theory. Regardless, I explain in Part V.F.3 of this rebuttal report why Professor Rubinfeld is wrong that Sanofi's Bundle passes the discount attribution test, and so there would be no disagreement between Professor Salinger and me on whether antitrust enforcement is warranted in this case.

378. Professor Rubinfeld attempts to diminish the significance of Professor Farrell's analysis by characterizing it as "general remarks about the potential of loyalty discounts to have anticompetitive effects."<sup>658</sup> Professor Farrell's presentation, however, undoubtedly shows that he has analyzed this issue even if

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<sup>653</sup> Elhauge Merits Report Part V.B & V.C.

<sup>654</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*5 (D.N.J. September 30, 2015)

<sup>655</sup> Rubinfeld Report ¶297.

<sup>656</sup> Rubinfeld Report ¶298.

<sup>657</sup> Rubinfeld Report ¶298.

<sup>658</sup> Rubinfeld Report ¶299.



he has not yet published his work: his conclusion that “Bilateral vertical restraints, and conditional pricing in particular, can profitably harm competition in ways that are more like collusion than exclusion”<sup>659</sup> clearly articulates the potential for harm through market division.

379. Professor Rubinfeld also ignores the fact that my 2015 article with Professor Wickelgren was awarded the “Best Academic Anticompetitive Practice Article” of 2015 by an ideologically diverse and distinguished board of six practitioners.<sup>660</sup> Such an award is hardly the brand of a rejected theory.

380. Finally, Professor Rubinfeld also claims that the market division theory “has not been empirically tested or validated.”<sup>661</sup> However, as the Court correctly observed, “Professor Elhauge points out that the type of data required to test this theory—i.e. sensitive cost and profit data in bundled vaccine markets—is not publically available. In any event, he conducted empirical analysis in this case.”<sup>662</sup>

***B. The Market Division Theory Establishes The Conditions for Anticompetitive Harm, Which Are Present Here***

381. Professor Rubinfeld criticizes the market division theory for establishing only the “possibility that loyalty contracts can have such anticompetitive effects,” rather than claiming that loyalty contracts “always” or “must” cause these anticompetitive effects.<sup>663</sup> He points out that not all loyalty discounts or markets have the features I model.<sup>664</sup> But that simply repeats the argument noted above, and is irrelevant since in this case the loyalty discount and market does satisfy the necessary conditions as I have shown. Likewise, he states that I establish only that “loyalty discounts *can* (not *will*) have” this effect.<sup>665</sup>

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<sup>659</sup> DOJ/FTC Conditional Pricing Practices Workshop Transcript, pp.67-73 (June 23, 2014), [https://ftc.gov/system/files/documents/public\\_events/302251/cpp\\_workshop\\_transcript.pdf](https://ftc.gov/system/files/documents/public_events/302251/cpp_workshop_transcript.pdf).

<sup>660</sup> Elhauge Merits Report ¶160 n.230.

<sup>661</sup> Rubinfeld Report ¶300.

<sup>662</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*6 (D.N.J. September 30, 2015).

<sup>663</sup> Rubinfeld Report ¶301.

<sup>664</sup> Rubinfeld Report ¶302.

<sup>665</sup> Rubinfeld Report ¶¶302-303.

Again, this simply means that Professor Wickelgren and I properly limited our conclusions to the assumptions of our model.

382. Professor Rubinfeld simply ignores the fact that *when applied to this case*, the market division models *do* definitively establish that Sanofi's Bundle divided the MCV4 market. While the initial model from Elhauge (2009a) showed that there was a possible equilibrium where buyers would reject loyalty discounts, that is irrelevant here because the evidence in this case shows that buyers did accept Sanofi's Bundle.<sup>666</sup> Further, my 2015 article with Professor Wickelgren shows that there is no equilibrium in which loyalty discounts will not divide a market if there is a sufficient number of buyers, and with linear demand merely three or more buyers is sufficient.<sup>667</sup> Thus, the conditions for anticompetitive market division are present in this case, and any alternative specifications where harm may not arise are irrelevant.

383. Professor Rubinfeld asserts in conclusory fashion that the "theory [does not] match the facts of this case."<sup>668</sup> However, he fails to demonstrate any relevant facts on which the theory and the facts diverge. He also ignores all the evidence I present that Sanofi's Bundle in fact did divide the market in this case. This evidence includes the facts that: Sanofi designed the Bundle to divide the market in a way that increased prices and both Sanofi and Novartis contemporaneously that it succeeded in doing so,<sup>669</sup> the size of the bundled penalties confirmed market division,<sup>670</sup> the market data confirmed the market division,<sup>671</sup> the regressions confirmed the market division,<sup>672</sup> actual Novartis pricing behavior confirmed the market division,<sup>673</sup> and the data shows the Bundle did in fact raise market prices.<sup>674</sup>

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<sup>666</sup> Elhauge Merits Report ¶¶194-196 ("compliance with the Bundle's Menactra loyalty commitment was [] high").

<sup>667</sup> Elhauge & Wickelgren (2015) at 113.

<sup>668</sup> Rubinfeld Report ¶300.

<sup>669</sup> Elhauge Merits Report Parts V.B & V.C.

<sup>670</sup> Elhauge Merits Report Part V.D.

<sup>671</sup> Elhauge Merits Report Parts V.E.1.-V.E.3.

<sup>672</sup> Elhauge Merits Report Part V.E.4.

<sup>673</sup> Elhauge Merits Report Part V.C. ¶¶167-169.

<sup>674</sup> Elhauge Merits Report Parts VI & VII.

***C. The Market Division Theory Appropriately Applies One-Shot Bertrand Competition***

384. Professor Rubinfeld notes that my estimate of but-for prices, showing that “Menactra prices would have decreased substantially following Menveo entry but-for the challenged conduct,” is based on a differentiated Bertrand competition model.<sup>675</sup> However, he argues that the District Court was mistaken when it rejected Sanofi’s argument that my differentiated Bertrand model is inappropriate because it assumes a one-shot game.<sup>676</sup> As the Court correctly observed, the economic literature shows that “one-shot game oligopoly models provide useful, if imperfect predictions of the behavior of real-world oligopolies, and indeed, these models have been found to explain reasonably well the levels of prices and profits typically observed in real-world industries.”<sup>677</sup>

385. Professor Rubinfeld incorrectly asserts that the one-shot assumption is “counterfactual” because in this market firms “interact not only once but instead day after day, year after year.”<sup>678</sup> But that assertion misunderstands the one-shot assumption, which does not assume firms do not interact repeatedly, but rather assumes only that firms set their profit-maximizing price in each period given the actual prices of the other firm, rather than hoping that sacrificing profits by setting prices too high in this period will be rewarded by the other firm with higher prices in a following period.<sup>679</sup> Indeed, the claim in his report that the Bertrand one-shot

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<sup>675</sup> Rubinfeld Report ¶¶304–306.

<sup>676</sup> Rubinfeld Report ¶307.

<sup>677</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*13 (D.N.J. September 30, 2015).

<sup>678</sup> Rubinfeld Report ¶308.

<sup>679</sup> Elhauge Class Rebuttal Report ¶246 (“Assuming a single-period game simply assumes that each firm tries to maximize revenue in the current period. It does not assume that firms never face future periods where they have to make such decisions again. It simply assumes that firms will not make profit-sacrificing pricing decisions in the current period in the hopes of influencing prices in future periods. That assumption is likely to be true when the above-noted three conditions necessary for price coordination are not met, and it is a core assumption of the differentiated Bertrand model that is the standard “workhorse” model used to analyze differentiated markets.”); Daubert Tr. 570 (A. “a one-shot game ... doesn’t mean you have no repeated interaction, it simply means that you try to maximize profits in each period. So the assumption is simply that you do not sacrifice profits in the current period in the hopes that maybe the rival will return the favor in future periods absent some ability to coordinate. So there’s no assumption that there’s no repeated interaction. It’s just that without the conditions for price coordination, firms have incentive to maximize their individual profits in each period. Q. So is Mr. Kaplan correct that the fact that Sanofi and Novartis interacted repeatedly over time suffices to show that the differentiated Bertrand model that you used here does not apply? A.

assumption means that firms do not interact over time contradicts Professor Rubinfeld's own academic writings, which make clear that the Bertrand model's one-shot assumptions does not assume firms fail to interact over time but rather assumes only that they do not interact collusively.<sup>680</sup> If the one-shot assumption depended on the premise that firms do not interact over time, it could *never* apply to any differentiated market, given that firms in those markets always interact over time. Thus, the claim Professor Rubinfeld makes here about the one-shot assumption contradicts the reality that the differentiated Bertrand competition model is not only the workhorse model used to analyze differentiated markets, but also the model used in Professor Rubinfeld's academic writings to analyze such markets.<sup>681</sup>

386. Professor Rubinfeld argues that I should instead have used a model that "allows for tacit price coordination."<sup>682</sup> His argument simply assumes that the Court was mistaken when it rejected Sanofi's argument that I failed to show that price coordination would not occur in this market. As the Court correctly observed, "data analysis by Professor Elhauge shows that the firms virtually never coordinated on actual prices" and "Differentiation and price opacity support a finding that the parties could not coordinate."<sup>683</sup> My opening merits report

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No, he's not right. That's the case in almost every case to which differentiated Bertrand models are applied. There's always repeated interaction").

<sup>680</sup> See Daniel Rubinfeld, *Empirical Methods in Antitrust: New Developments in Merger Simulation*, THE MORE ECONOMIC APPROACH TO EUROPEAN COMPETITION LAW 277, 277 (Schmidtchen, Albert & Voigt 2007) ("Simulation models typically assume that the behavior of firms is consistent with the Bertrand model of pricing, both pre-merger and post-merger. According to the Bertrand view of the world, each firm sets the prices of its brands to maximize its profit, while **accounting for possible strategic, non-collusive interactions with competitors**. An equilibrium results when no firm can increase its profit by unilaterally changing the prices of its brands. This equilibrium can be interpreted as the **outcome of the interactions between each firm's pricing decisions and its expectations of the price reactions of its competitors**.")(emphasis added); Roy J. Epstein & Daniel L Rubinfeld, *Merger Simulation: A Simplified Approach With New Applications*, 69 ANTITRUST L. J. 883, 886 (2001).

<sup>681</sup> See *infra* Part VIII.C.1.

<sup>682</sup> Rubinfeld Report ¶310.

<sup>683</sup> *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381, at \*13-14 (D.N.J. September 30, 2015). The Court quoted another article co-authored by Gregory Werden as explaining that "the competitive interaction is likely to be noncooperative in most differentiated product industries, in part because product differentiation tends to make it more difficult to reach collusive agreements." *Id.* at \*10 (citing Gregory J. Werden and Luke M. Froeb, *The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy*, 10 JOURNAL OF LAW, ECONOMICS, & ORGANIZATION 407, 407 (1994)).

explains in great detail how product differentiation,<sup>684</sup> asymmetric costs,<sup>685</sup> uncertainty about rival costs,<sup>686</sup> nontransparent private prices,<sup>687</sup> and complex pricing structures<sup>688</sup> each make price coordination implausible in this case, and how the market evidence (including the sales data) proves no coordination actually took place between Menveo and Menactra.<sup>689</sup>

387. Professor Rubinfeld also claims that Professor Tirole’s textbook somehow shows that any repeated interaction makes the oligopolistic coordination model appropriate even in a differentiated market.<sup>690</sup> As I have previously pointed out in this case, the problem with this argument is that the cite is to Professor Tirole’s chapter on *undifferentiated* markets, which is where he argues that repeated interaction could make coordination plausible, while ignoring his chapter on *differentiated* markets like the one here.<sup>691</sup> He also ignores the fact that just after the page cited, Professor Tirole concluded, as I do, that “heterogeneity in both costs and products may make coordination on a given price difficult” and “asymmetries between firms” is one of the factors that “may hinder collusion.”<sup>692</sup>

388. Professor Rubinfeld next argues that, for “the case in which the products are undifferentiated”, the Bertrand Nash equilibrium of the one-shot Bertrand model “is not a predictive solution concept” because it “gives both firms zero profits.”<sup>693</sup> He reasons that because other pairs of non-equilibrium actions by the firms would increase both firms’ expected profits, it makes no economic sense for these firms to participate in the zero-profit Nash equilibrium of the game.”<sup>694</sup>

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<sup>684</sup> Elhauge Merits Report ¶269.

<sup>685</sup> Elhauge Merits Report ¶270.

<sup>686</sup> Elhauge Merits Report ¶271.

<sup>687</sup> Elhauge Merits Report ¶¶272-273.

<sup>688</sup> Elhauge Merits Report ¶274.

<sup>689</sup> Elhauge Merits Report ¶¶275-284.

<sup>690</sup> Rubinfeld Report ¶311-13.

<sup>691</sup> Daubert Tr. 569 (“the trouble is, Kaplan is relying on the Tirole chapter that’s about undifferentiated markets, but Tirole has another chapter that deals with differentiated markets, which is what is at issue here”); Elhauge Class Supp. Report ¶ 185 (“Kaplan ... relies on chapters in economics books about undifferentiated markets that explain that oligopolistic coordination may be possible in multiperiod games, ignoring different chapters in those books that address differentiated markets like the one here.”).

<sup>692</sup> TIROLE, *THE THEORY OF INDUSTRIAL Organization* 240, 242 (1988); Elhauge Merits Report ¶269-270.

<sup>693</sup> Rubinfeld Report ¶315.

<sup>694</sup> Rubinfeld Report ¶315.



But by his own admission, with Menactra and Menveo “the two products are in fact somewhat differentiated.”<sup>695</sup> After laying out all of his reasoning for why the Nash equilibrium is not a predictive concept with undifferentiated products,<sup>696</sup> he argues that the same could apply to differentiated products *if there were almost no differentiation*: “When that degree of differentiation is *small, approaching zero*, the worst action each firm could take is to follow the Nash equilibrium prescription to set price equal to marginal cost.”<sup>697</sup> So Professor Rubinfeld only explains his logic for undifferentiated products or products with negligible differentiation; he does not actually show that the Nash equilibrium lacks predictive power for products that are actually differentiated, such as Menveo and Menactra.

389. Furthermore, Professor Rubinfeld’s argument confuses whether an ultimate Nash equilibrium is desirable for two firms with whether individual profit maximizing incentives would drive them to that equilibrium. This result does not indicate some failure of the Bertrand model, but rather shows what occurs in a competitive market.<sup>698</sup> His claim that the Nash equilibrium result makes “no economic sense” amounts to a claim that competition is irrational because it reduces firms’ profits. By Professor Rubinfeld’s logic, firms engaged in perfect competition and following the Nash equilibrium to price at marginal cost are also doing “the worst thing that a firm could do” and thus competitive markets should not exist. Under such logic, all firms in every market in the world would always coordinate on cartel pricing, which is clearly contrary to basic economic principles, including that in his own microeconomics textbook.<sup>699</sup>

#### ***D. The Market Division Model Does Not Rely on Implausible Strategies***

390. Professor Rubinfeld critiques my model of market division for undifferentiated markets because it does not have a unique pure-strategy equilibrium if the foreclosure share is sufficiently small.<sup>700</sup> However, my 2015 article with Professor Wickelgren explains that “if the entrant and incumbent had sufficiently differentiated products, then there would be a pure strategy pricing equilibrium.”<sup>701</sup> Further, even for undifferentiated products, the article proves that

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<sup>695</sup> Rubinfeld Report ¶315.

<sup>696</sup> Rubinfeld Report ¶¶317-325.

<sup>697</sup> Rubinfeld Report ¶326 (emphasis added).

<sup>698</sup> VIII.A.2.

<sup>699</sup> *Id.*

<sup>700</sup> Rubinfeld Report ¶327.

<sup>701</sup> Elhauge & Wickelgren (2015) at 115.

in fact a pure strategy will result if the foreclosure share is sufficiently high, and that it will result in the incumbent selling to loyal buyers at the monopoly price.<sup>702</sup> Here, the evidence shows that is precisely what happened because Sanofi continued to charge the pre-entry monopoly price or more to its loyal buyers after Menveo entry.<sup>703</sup> Sanofi also maintained a rigid pricing structure.<sup>704</sup> For these reasons, Professor Rubinfeld is wrong that the market division theory or the results in this case are in any way dependent upon the use of mixed strategies.

391. Even if (contrary to fact) my results in this case depended on the use of mixed strategies, that would not render the market division theory inapplicable. Professor Rubinfeld claims that “it is implausible[] for a real-world firm to pursue a mixed strategy that requires it to randomly choose a different price in each period”, that “no firm has an incentive to play the role that the mathematics of mixed-strategy Nash equilibrium specifies for it,” and that to play a mixed strategy each firm must know the other’s firm’s payoffs (which he deems “unlikely”).<sup>705</sup> But contrary to his assertions, mixed strategy equilibriums are frequently used and deemed plausible in economics. My 2015 article with Professor Wickelgren explains that “there is empirical support for mixed strategy equilibria when firms operate in partially segmented markets”<sup>706</sup> and indeed Rubinfeld himself in his microeconomics textbook has stated that “there are games... in which a pure strategy is not the best way to play.”<sup>707</sup>

### *E. Market Division Theory Does Fit Facts of This Case*

392. Professor Rubinfeld makes three additional mistaken arguments that he claims show my market division conclusions are driven by “restrictive assumptions that are not supported by the facts in this case.”<sup>708</sup> His general argument that market division theory does not fit the facts of this case conflicts with the contemporaneous business documents of Sanofi and Novartis, which conclude to the contrary that it did.<sup>709</sup> Each of his three additional arguments is also mistaken.

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<sup>702</sup> Elhauge & Wickelgren (2015) at 114.

<sup>703</sup> See Elhauge Merits Report Part VI.A.

<sup>704</sup> See Elhauge Merits Report Part VIII.A.

<sup>705</sup> Rubinfeld Report ¶¶328-330.

<sup>706</sup> Elhauge & Wickelgren (2015) at 115.

<sup>707</sup> Pindyck & Rubinfeld, Microeconomics 496 (8<sup>th</sup> ed. 2013).

<sup>708</sup> Rubinfeld Report ¶332.

<sup>709</sup> Elhauge Merits Report Part V.B & V.C.

393. First, he incorrectly asserts that my analysis merely “assumes that there is no possibility for either firm to engage in tacit actions.”<sup>710</sup> His assertion that I relied on mere assumption contradicts the District Court’s accurate finding that I reliably showed that tacit coordination was not only implausible given product differentiation and price opacity, but also disproven by data showing that there was no actual price coordination.<sup>711</sup>

394. Next, Professor Rubinfeld disputes whether Sanofi committed to charging loyal buyers less than disloyal buyers, claiming that “there is no contractual commitment that would prevent Sanofi from increasing its discounts (and lowering prices) for its non-loyal customers without having to change any price for its loyal customers” and that “There is no commitment by Sanofi to always offer better pricing to its contract customers.”<sup>712</sup> Professor Rubinfeld has plainly ignored the great breadth of evidence in this case to the contrary. Sanofi’s rigid price structure and contracts with PBGs, GPOs, and systems created precisely such a seller commitment.<sup>713</sup> Sanofi’s own practice of using a single price formula for all class members, using standard contracts to implement discounts, and rarely deviating from this rigid price structure evinces a clear seller commitment to charge loyal buyers less than disloyal buyers. Sanofi’s Senior Director of Pricing explicitly acknowledges that Sanofi could not lower prices to disloyal customers without losing its loyal customer base; he stressed in a document that Sanofi’s pricing cannot both enforce bifurcation (by giving better prices to loyalists) and be competitive to customers who buy a “mixed bag” of products (i.e., give better prices to disloyal customers).<sup>714</sup>

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<sup>710</sup> Rubinfeld Report ¶332.

<sup>711</sup> See *Castro v. Sanofi Pasteur Inc.*, 2015 WL 5770381 (D.N.J. September 30, 2015) at \*13 (“data analysis by Professor Elhauge shows that the firms virtually never coordinated on *actual* prices, as opposed to list prices”) (emphasis in original); *id.* at \*14 (“Differentiation and price opacity support a finding that the parties could not coordinate.”)

<sup>712</sup> Rubinfeld Report ¶¶333-336.

<sup>713</sup> See Elhauge Merits Report VIII.A.-VIII.B.

<sup>714</sup> SP 00496642 at SP 00496645 (November 2009 internal Sanofi document titled “Pricing & Contract Strategy: Maintaining our Dominant Market Share & Positioning Ourselves for 2010.” “Pricing can not encourage customers to stay with sanofi pasteur (bifurcation) and be competitive for customers that choose a mixed bag of products. Consequently, we will have customers that are GSK loyalists or a ‘mixed bager’ and the rep will have limited opportunity to take a piece of the business. Bifurcated pricing will force a customer choice.”).

395. Lastly, Professor Rubinfeld repeats his claim that the model I use assumes Novartis' inability to price discriminate and also claims that Novartis can and does in fact price discriminate.<sup>715</sup> I already explained that the market division theory does not require any such assumption when bundled penalties are below cost or there is a buyer commitment, and both of these conditions hold in the present case.<sup>716</sup> Thus, whether or not Novartis can price discriminate has no bearing on the applicability of the market division theory in this case. And even if it were relevant, Novartis's incentives to price discriminate were sufficiently limited by the VFC program that it would not affect any of my conclusions.<sup>717</sup>

***F. Market Division Theory Does Not Conflict With Standard Models of Loyalty Discounts***

396. Finally, Professor Rubinfeld claims that my "model leads to conclusions that are inconsistent with the standard models of loyalty discounts."<sup>718</sup> His whole line of argument ignores the fact that my conclusions are consistent with the standard market division theory of loyalty discounts. Further, each of his arguments for this claim is misguided.

397. First, Professor Rubinfeld argues that, "in contrast to the generally-accepted economic theories, Professor Elhauge's conclusion that loyalty discounts result in a divided market and supra-competitive prices does not depend on a substantial portion of the market being 'foreclosed' by the alleged conduct."<sup>719</sup> This argument is irrelevant here since in fact I found a large foreclosure share.<sup>720</sup> Nor is his claim valid. He cites nothing in support of his assertion that generally accepted economic theories require a substantial foreclosure share for market division to be anticompetitive, nor any literature disproving the conclusion of my article. The conclusion in my 2009 article that the price inflation could be high with a low foreclosure share was based on the undifferentiated Bertrand model used in that article.<sup>721</sup> In the sort of differentiated Bertrand competition we have here (and that usually exists), the but-for price is much higher than with an

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<sup>715</sup> Rubinfeld Report ¶¶337-338.

<sup>716</sup> Elhauge Merits Report ¶¶182-184.

<sup>717</sup> Elhauge Merits Report ¶¶185-187; *infra* Part V.F.

<sup>718</sup> Rubinfeld Report ¶440.

<sup>719</sup> Rubinfeld Report ¶440.

<sup>720</sup> Elhauge Merits Report Part V.E.5.

<sup>721</sup> Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189 (2009).

undifferentiated Bertrand model and thus the price difference is lower. Further, his argument that my article does not require a substantial foreclosure share is contradicted by all the analysis in my article that follows immediately after what he quotes. I there stated:

“five other factors counsel for requiring evidence of a substantial foreclosure share where direct evidence of rival efficiency impairment is not present. First, all my results depend on the existence of no more than one rival who has achieved minimum efficient scale in the unforced market. Second, my analysis also indicates that buyers are unlikely to agree to anticompetitive loyalty commitments unless the foreclosure share is large. Third, for loyalty discounts without buyer commitments, the size of the anticompetitive effect increases with the foreclosure share. Fourth, in a claim brought by a rival, there will not be antitrust injury without a substantial foreclosure share. Finally, at a low foreclosure share, the firm using loyalty discounts would have to be willing to give up most of the market share, which does not describe most cases.”<sup>722</sup>

Accordingly, my article rejects at length precisely the proposition that Professor Rubinfeld misattributes to me.

398. Second, Professor Rubinfeld argues that, “Professor Elhauge’s model predicts that market division would occur even if the magnitude of the loyalty discount is very small.”<sup>723</sup> This argument is irrelevant here because, as I showed, the Bundled penalties here were very large.<sup>724</sup> Nor does he cite any support for his assertion that generally accepted economic theories find that loyalty discounts must be large to have anticompetitive effect. In fact, his assertion has been specifically rejected in the economic literature, which has repeatedly found that, even under a raising rivals’ cost theory, buyers will accept a trivial loyalty discount that significantly raises marketwide prices because each buyer’s individual agreement contributes to a marketwide harm that is bears only in proportion to its market share, with the rest externalized on the rest of the market.<sup>725</sup> As I have explained in summarizing this literature:

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<sup>722</sup> Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 218 (2009).

<sup>723</sup> Rubinfeld Report ¶441.

<sup>724</sup> Elhauge Merits Report Part V.D.

<sup>725</sup> See MICHAEL D. WHINSTON, LECTURES ON ANTITRUST ECONOMICS 144–47, 166 (2006); Joseph Farrell, *Deconstructing Chicago on Exclusive Dealing*, 50 ANTITRUST BULL. 465, 476 (2005); Louis Kaplow & Carl Shapiro, *Antitrust*, in 2 HANDBOOK OF LAW & ECONOMICS 1073, 1203–10 (A. Mitchell Polinsky & Steven Shavell eds., 2007); Eric B.



“externality problems give buyers an incentive to agree to anticompetitive foreclosing agreements that produce large marketwide price increases in exchange for a nominal individual discount, even if the result of all of them agreeing is that the monopolist’s rivals are impaired and the buyers then pay higher prices than they otherwise would have paid. For example, if there are 10,000 buyers of a product, any individual buyer’s agreement to an exclusionary commitment that contributes to a marketwide price increase externalizes 99.99% of the harm caused by that buyer’s contribution to the market price increase. Each buyer would thus agree in exchange for any individual discount (or avoided price penalty) that exceeded 0.01% of that buyer’s contribution to the marketwide price increase.”<sup>726</sup>

In my 2009 market division model, the conclusion that a small single-product loyalty discount can divide markets in ways that significantly raise prices is also dependent on the particular assumptions of that model, including undifferentiated Bertrand competition and either irrevocable buyer commitments or no rival ability to price discriminate.<sup>727</sup>

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Rasmusen, J. Mark Ramseyer & John S. Wiley, Jr., *Naked Exclusion*, 81 AM. ECON. REV. 1137 (1991); Ilya R. Segal & Michael D. Whinston, *Comment, Naked Exclusion*, 90 AM. ECON. REV. 296 (2000); Einer Elhauge, *Defining Better Monopolization Standards*, 56 STAN. L. REV. 253, 284-92 (2003).

<sup>726</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 456 (2009).

<sup>727</sup> This result would not obtain in the but-for world with a single product 4% Menactra loyalty discount for three reasons. *See infra* Part V.A.2. (explaining that this small loyalty discount would not suffice to divide the market here.) (1) The commitment in the but-for world would be revocable, whereas in my 2009 model it was not, and in the actual world the commitment was not functionally revocable because of the bundled penalties. (2) The limited ability to price discriminate would overcome any small single-product loyalty discount, whereas my model on cases without an irrevocable commitment assumes there is no rival ability to price discriminate, and in the actual world the limited ability to price discriminate was demonstrably unable to overcome the large size of the bundled penalties. (3) The MCV4 market in the but-for world would be differentiated, whereas the model set out in my article assumes an undifferentiated market. While differentiation only increases the likelihood of anticompetitive effects when the preceding conditions are met, *see supra* introduction to Part IV, the conclusion that a small loyalty discount can produce a significant magnitude of anticompetitive effect does depend on the undifferentiated market assumption because in an undifferentiated market small price differences have huge demand effects and the but-for prices are so low.

399. Third, Professor Rubinfeld asserts that my “model also predicts that market division will occur even if the market share requirement to earn the loyalty discounts is relatively small.”<sup>728</sup> It is true that my model shows that the loyalty threshold need not be 100%. But there is no economic literature that purports to show that loyalty commitments cannot have anticompetitive effects where, as here, the loyalty threshold is 80 to 90% rather than hundred percent, and Rubinfeld does not cite to any. Instead, by using two selective partial quotes, he misleadingly and wrongly attributes to me the proposition that “Professor Elhauge asserts that ‘[a] threshold lower than 100 percent does not at all alter the anticompetitive effects of loyalty discounts’ because, in his model, ‘buyers always buy more than the threshold from the incumbent.’”<sup>729</sup>

400. His first partial quote to me misleadingly omits the rest of the sentence, which makes clear that the conclusion applies only to cases, unlike here, where there is no loyalty commitment. What I said was: “A threshold lower than 100 percent does not at all alter the anticompetitive effects of loyalty discounts *without buyer commitments*. Although *a lower threshold reduces the anticompetitive effects for loyalty discounts with buyer commitments*.”<sup>730</sup> In short, the full quote states precisely the opposite of what Professor Rubinfeld claims I said about loyalty commitments like the one here.

401. His second partial quote again misleadingly omits the rest of the sentence. What I said was: “for loyalty discounts without buyer commitments, anticompetitive effects result though buyers always buy more than the threshold from the incumbent.”<sup>731</sup> Again, the full quote makes clear the statement does not apply where, as here, there are buyer loyalty commitments. Nor did this statement, or anything in my model, suggest that there was any causal connection between buyers purchasing more than the threshold and the conclusion that a threshold lower than hundred percent can still be anticompetitive. This statement is instead rebutting a different assertion by some that loyalty discounts cannot be anticompetitive if buyers buy more than the threshold.

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<sup>728</sup> Rubinfeld Report ¶442.

<sup>729</sup> Rubinfeld Report ¶442.

<sup>730</sup> Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 218 (2009).

<sup>731</sup> *Id.*

402. Professor Rubinfeld ends this section with the false assertion that my “theory appears to condemn broadly the practice of offering loyalty discounts, regardless of whether the discount results in a substantial foreclosure of rival’s business, regardless of the size of the discount, and regardless of the extent to which the market share requirement is relaxed.”<sup>732</sup> It is simply untrue that my theory condemns all loyalty discounts per se regardless of the foreclosure share, size of discount, or threshold. Nor is this claim relevant because, as I have shown, the foreclosure share, penalty size, and threshold are all large in this case.

## V. SANOFI’S BUNDLE ANTICOMPETITIVELY DIVIDED THE MCV4 MARKET

403. In Part V of my opening merits report, I showed that Sanofi’s Bundle is a real-life example of how an incumbent firm can anticompetitively inflate market prices by using bundled loyalty contracts to divide a market. Sanofi’s Bundle divided the MCV4 market between: (a) *restrained* customers, who both made a Menactra loyalty commitment and faced bundled penalties on Sanofi’s pediatric vaccines if they switched to Menveo, and (b) *unrestrained* customers, who either did not make a Menactra loyalty commitment or did not buy Sanofi Pediatric vaccines.<sup>733</sup> I explained in my opening merits report how the Bundle divided the MCV4 market and caused Menactra and Menveo prices to be inflated for both restrained and unrestrained customers:

“For *restrained* customers, . . . the Bundle meant Menactra could maintain a dominant share without cutting its monopoly price because competition from Menveo was restrained. The Bundle thus gave Sanofi incentives to keep Menactra prices to restrained customers at the same monopoly levels that Sanofi charged before Menveo entry, [and] that is precisely what Sanofi did.

For *unrestrained* buyers, . . . the Menactra price was, by operation of Sanofi’s contracts, set equal to the price being charged restrained customers plus a small 4% penalty that applied to customers who were not loyal to Menactra or not loyal to Sanofi’s Pediatric vaccines. Because the Bundle made the Menactra price to restrained customers a monopoly price, it necessarily made the Menactra price to unrestrained customers 4% higher than that. . . . The Menactra

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<sup>732</sup> Rubinfeld Report ¶443.

<sup>733</sup> Elhauge Merits Report ¶155.

overcharge should thus be precisely the same to both restrained and unrestrained customers.

The Bundle also increased Menveo prices to both restrained and unrestrained buyers. For restrained buyers, the Bundle increased Menveo prices because the Bundle meant Novartis could not win a significant share of restrained buyers by cutting Menveo prices to them. For unrestrained buyers, the Bundle increased Menveo prices because it inflated the Menactra price available to those unrestrained buyers so Menveo had less need to cut prices to unrestrained buyers.”<sup>734</sup>

404. In Part V of my opening merits report, I showed that many different types of evidence confirmed that the Bundle anticompetitively divided the MCV4 market:

- (a) internal Sanofi documents show that Sanofi designed the Bundle to divide the MCV4 market and raise prices and recognized that it accomplished both ends.<sup>735</sup>
- (b) Novartis deposition testimony and internal Novartis documents show it recognized that the Bundle divided the MCV4 market and inflated prices.<sup>736</sup>
- (c) the enormous size of the Bundled penalties gutted Novartis’ incentives to cut prices in order to gain restrained customers.<sup>737</sup>
- (d) Novartis’ actual pricing of Menveo reflected this market division.<sup>738</sup>
- (e) copious Sanofi and Novartis internal documents confirm that the bundled divided the MCV4 market by restraining customers from buying Menveo.<sup>739</sup>
- (e) data show that compliance with Sanofi’s Bundle was so high that it was economically equivalent to tying.<sup>740</sup>
- (f) data show Menveo had a significantly higher share among unrestrained customers (30%) than among restrained customers (9%).<sup>741</sup>
- (g) regression analysis confirms that the Bundle has a restraining effect.<sup>742</sup>

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<sup>734</sup> Elhauge Merits Report ¶¶156-158.

<sup>735</sup> Elhauge Merits Report Part V.B.

<sup>736</sup> Elhauge Merits Report Part V.C.

<sup>737</sup> Elhauge Merits Report Part V.D.

<sup>738</sup> Elhauge Merits Report Part V.D.2.

<sup>739</sup> Elhauge Merits Report Part V.E.1.

<sup>740</sup> Elhauge Merits Report Part V.E.2.

<sup>741</sup> Elhauge Merits Report Part V.E.3.

(h) data shows the Bundle foreclosed 53-63% of the private segment of the MCV4 market and 40-52% of the entire MCV4 market.<sup>743</sup>

405. Professor Rubinfeld does not even attempt to refute the copious Sanofi and Novartis internal documents showing that Sanofi and Novartis believed that the Bundle restrained customers from buying Menveo. In this Part, I show that where Professor Rubinfeld does attempt to refute the other evidence, he repeatedly makes errors and often ignores that even his own analysis confirms that the Bundle anticompetitively divided the MCV4 market.

406. In my opening merits report, I also showed that the price data in this case confirmed that Sanofi succeeded in using the Bundle to maintain anticompetitively inflated prices. In particular, I showed that: (1) based on the conditions of the MCV4 market, Menveo entry should have caused Menactra prices to decrease relative to pre-entry levels if there was no anticompetitive conduct, but that in reality Menactra prices *increased* after Menveo entry,<sup>744</sup> and (2) a detailed simulation based on the facts and data of this case show that Menactra and Menveo's prices would have been significantly lower if the Bundle had not distorted competition in the MCV4 market.<sup>745</sup> I discuss Professor Rubinfeld's criticisms of that evidence below in Parts VII and VIII, respectively and show they lack merit. Further, his attempts to create alternative estimates of but-for Menactra and Menveo prices (such as his "yardstick" analysis and his "conjectural variation" simulation) are fundamentally flawed.

#### ***A. The MCV4 Market Was Not Already Divided Before the Bundle Was Added***

407. Professor Rubinfeld actually admits that the MCV4 market was divided by loyalty contracts, but argues incorrectly that it would still have been divided without the Bundle.<sup>746</sup> In particular, Professor Rubinfeld argues that, without the Bundle, two other aspects of Sanofi's contracts would still have

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<sup>742</sup> Elhauge Merits Report Part V.E.4.

<sup>743</sup> Elhauge Merits Report Part V.E.5.

<sup>744</sup> Elhauge Merits Report Part VI.

<sup>745</sup> Elhauge Merits Report Part VII.

<sup>746</sup> Rubinfeld Report ¶339 ("Professor Elhauge relies heavily on evidence that Sanofi and Novartis viewed the vaccine market as divided to support his theory of anticompetitive effects. That the market is divided, however, does not support his theory that it was the challenged conduct that caused this division. In fact, well before the Menactra benchmark was implemented and well before Menveo launched, the vaccine market was divided.")



divided the MCV4 market: (1) Sanofi's requirement that customers be loyal to Sanofi's Pediatric vaccines in order to receive loyal Menactra prices,<sup>747</sup> and (2) Sanofi's requirement that a customer be loyal to Menactra to receive loyal Menactra prices (i.e., a single-product, unbundled loyalty contract for Menactra).<sup>748</sup> I explain below that neither of those contract terms would have divided the MCV4 market absent the Bundle.

*1. Conditioning Loyal Menactra and Pediatric Prices on Loyalty to Sanofi's Pediatric Vaccines Would Not Divide the MCV4 Market.*

408. **a. MCV4 Market Was Not Already Divided Before Sanofi Added the Bundle and Menveo Entered.** Professor Rubinfeld argues that the "vaccine" market was *already* divided before Sanofi added the Bundle in mid-2009 based on the premise that even then "many physicians purchased their vaccines through PBGs, some of which had contracts with Sanofi, and some of which had contracts with other manufacturers of pediatric vaccines (e.g., GSK)."<sup>749</sup> This argument fails for two reasons. First, there is no relevant "vaccine" market in this case – instead, there are multiple distinct relevant markets for each vaccine type (e.g. the MCV4 market).<sup>750</sup> Second, the MCV4 market could not have already been divided before Sanofi added the Bundle in mid-2009 because Menactra had no rival to divide the market with at that time (Menveo did not enter until 2010).

409. The fact that the MCV4 market could not have been divided *before* Menveo entered also refutes Professor Rubinfeld's claim that Sanofi's internal documents indicate the MCV4 market was divided before it added the Bundle.<sup>751</sup> Professor Rubinfeld notes that a Sanofi document from November 2009 (shortly after Sanofi added the Bundle, but before Menveo entered) states "[t]oday we have a bifurcated market."<sup>752</sup> Given that Menveo had not yet entered the MCV4 market, the document could not have meant that the MCV4 market was already "bifurcated." Instead, the surrounding text indicates that this sentence referred to the fact that multiple *Pediatric* vaccine markets were already bifurcated back in November 2009, which makes sense because Sanofi at the time already: (a) faced competition in all of its Pediatric vaccine markets (DTaP, Hib, and Polio), and (b)

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<sup>747</sup> Rubinfeld Report ¶¶339-341.

<sup>748</sup> Rubinfeld Report ¶¶342-344

<sup>749</sup> Rubinfeld Report ¶339.

<sup>750</sup> *See supra* Part I.

<sup>751</sup> Rubinfeld Report ¶341.

<sup>752</sup> Rubinfeld Report ¶341, citing SP 00496642-48 at 45.

imposed a bundled pediatric loyalty condition that imposed higher prices on other vaccines on customers who were not loyal to Sanofi's Pediatric vaccines.<sup>753</sup> Thus, the sentence cited by Professor Rubinfeld indicates only that the *Pediatric* vaccine markets were already divided by the bundled pediatric loyalty condition, not that the MCV4 market was already divided.

410. While the sentence cited by Professor Rubinfeld did discuss the already-successful division of the pediatric markets by the bundled pediatric loyalty, this November 5, 2009 memorandum urged Sanofi to use this past experience to plan for future MCV4 competition and use bundling to suppress such competition. Its very title stated it was about "Maintaining Our Dominant Market Share & Positioning Ourselves for 2010."<sup>754</sup> The document observed that Menactra was *about* to face competition at the time,<sup>755</sup> and thus recommended a pricing strategy of "increasing the customer costs of switching by increasing the discounts dollars associated with maintaining a loyal product selection."<sup>756</sup> This key document further stressed that it could implement this strategy by imposing penalty prices on disloyalty, rather than offering real discounts that produced a net price reduction for loyalty, stating that the strategy "can be accomplished by increasing list and the contract discount - not necessarily a net price change."<sup>757</sup> Further, the document made clear that it expected bifurcation of the MCV4 market to be based on whether buyers purchased Sanofi or GSK pediatric vaccines.<sup>758</sup> This is precisely the strategy that Sanofi implemented with the Bundle. In sum, this Sanofi document was a roadmap for the anticompetitive conduct challenged in this case, indicating precisely how Sanofi *planned* to divide the MCV4 market using a new version of the bundling strategy that had previously worked to divide

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<sup>753</sup> For example, the sentence immediately following the sentences cited in Rubinfeld Report ¶341 states that: "Loyalty based contracts by SP . . . [and] sole source [i.e., Menactra being the only provider in a market] on Menactra and Adacel . . . have contributed to this [the "bifurcated market"]. SP 00496642-48 at 45. This indicates Sanofi recognized it was able to divide the Pediatric vaccine markets by conditioning loyal Menactra prices on Pediatric loyalty, which was especially effective back then because Menactra was the only MCV4 vaccine at the time.

<sup>754</sup> SP 00496642.

<sup>755</sup> SP 00496642 at SP 00496643 ("Menactra as a sole source product meets this definition [of a 'core product with market dominance'] but the operating assumption is that on a forward looking basis there will be no clinical superiority and diminution of both physician perception and market share.").

<sup>756</sup> *Id.* at SP 00496647.

<sup>757</sup> *Id.*

<sup>758</sup> *Id.* at 00496645-46.

the pediatric vaccine markets, not that the MCV4 market was *already* divided before Menveo even entered.

411. Other Sanofi documents confirm its strategy was to divide the MCV4 market with the new bundled Menactra loyalty condition that is at issue in this case. A March 2010 Sanofi document stressed the “Need to segment private Menactra purchasers based on loyalty to Sanofi” and clarified that “Loyalty [was] defined by customer’s usage of SP Pediatric products.”<sup>759</sup> This document thus confirmed that the plan was to divide the MCV4 market based on pediatric loyalty. An August 2010 Sanofi document stresses that, with Menactra now facing new competition from Novartis, the goal was to contain the MCV4 share loss and “Strategically focus the share loss in the GSK loyal customer base,” which necessarily meant those buying pediatric vaccines from GSK.<sup>760</sup> That again indicates Sanofi was dividing the MCV4 market based on pediatric purchases by using the new bundled Menactra loyalty condition that imposed penalties on pediatric vaccines for Menactra disloyalty. Sanofi added that the strategy was to use the bundled portfolio pricing that would result in “SP loyal customers” buying “Menactra at a line item price premium” and “intensify discounts to loyal customers”, which given the Menactra premium necessarily meant increasing the pediatric penalty.<sup>761</sup> A September 2010 Sanofi document repeated that the “Menactra Market” strategy was to “Strategically emphasize share loss in the GSK loyal customer base.”<sup>762</sup> It also stressed that this strategy included “Increase topline list price,” which means increasing the penalty pricing on disloyal customers, and thus to “intensify discounts to loyal customers.”<sup>763</sup> It further stated that the overall “Menactra Segmentation” strategy was (1) for “private loyal” customers, to “maintain current price premium,” thus keeping Menactra prices at monopoly levels; and (2) for private non-loyal customers, to have “No drop in price as long as private loyal business is maintained.”<sup>764</sup> It added that it would “Increase list price by 5%” and “Maintain current price premium vs. Novartis for loyalty customers & increase premium for GSK loyal customers,” again confirming that Sanofi planned to increase the disloyalty penalty to keep prices to loyal customers a monopoly levels while charging even more for Menactra sold to

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<sup>759</sup> SP 00110507, at SP 00110510.

<sup>760</sup> SP 00018963, at SP 00018967.

<sup>761</sup> *Id.*

<sup>762</sup> SP 00513135, at SP 00513139.

<sup>763</sup> *Id.*

<sup>764</sup> SP 00513135, at SP 00513137. The same strategy was stated in the August 2010 document at SP 00018963, at SP 00018976.

GSK loyal customers.<sup>765</sup> It explained that “Expanded premium for GSK loyal customers will protect loyal customer base,” thus confirming that Sanofi thought that cutting prices to disloyal customers would undermine the loyalty pricing that protected Sanofi from competition for its loyal base.<sup>766</sup> This document again confirms the Sanofi plan was to divide the MCV4 market using the new bundled Menactra loyalty condition that imposed penalties on pediatric vaccines for Menactra disloyalty, and that Sanofi did so with the goal of producing precisely the harmful price effects that I found. Professor Rubinfeld ignores all these documents in this portion of his analysis.

412. Further, it is telling that Professor Rubinfeld acknowledges that the document he cited did indicate Sanofi’s strategy and showed that the market was already bifurcated. First, that means that Professor Rubinfeld is acknowledging that loyalty conditions *can* divide a market, precisely what he denies elsewhere in his report.<sup>767</sup> Second, it means that Professor Rubinfeld concedes the credibility of a document that stressed “Customer commitment is meaningful – emotional relationship that impacts customer decisions.”<sup>768</sup> This confirms that loyalty commitments do have an independent effect on customer decisions, contrary to what Professor Rubinfeld claims elsewhere in his report.<sup>769</sup>

413. **b. A Small (\$4) Difference In Incremental Menactra Prices That Would Remain In the But-for World Could Not Plausibly Divide the MCV4 Market.** Professor Rubinfeld argues that in the but-for world Sanofi would still condition Menactra prices on loyalty to Sanofi’s Pediatric vaccines, and that this would still divide the MCV4 market.<sup>770</sup> But conditioning *Menactra* prices on loyalty to Sanofi’s *Pediatric* vaccines (the converse of the Bundle) cannot divide the MCV4 market. This could not restrain customer decisions in the MCV4 market in any way because increasing Menactra’s price if a customer does not buy Sanofi’s Pediatric vaccines does not impose any penalty for buying Menveo. Without any restraint on customers’ MCV4 decisions, there can be no MCV4 market division.

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<sup>765</sup> SP 00513135, at SP 00513141.

<sup>766</sup> *Id.*

<sup>767</sup> *See supra* Part IV.

<sup>768</sup> SP 00496642 at SP 00496644 (“Customer commitment is meaningful – emotional relationship that impacts customer decisions.”).

<sup>769</sup> *See supra* Part V.

<sup>770</sup> Rubinfeld Report ¶343.

414. Professor Rubinfeld seems to be implying that the mere fact that some customers would still be getting slightly lower Menactra prices than others in the but-for world would be sufficient to cause a market division. He argues:

“Facing the loyalty discount offered by Sanofi on Menactra in the but-for world, Novartis would have faced similar strategic choices as it does in the actual world, i.e., either: (a) competing vigorously on price for all physicians, or (b) lowering price just far enough to maximize profits with respect to buyers non-loyal to Sanofi’s pediatric vaccines, while ceding Sanofi’s pediatric loyalists to Sanofi.”<sup>771</sup>

415. Professor Rubinfeld is ignoring that the Bundle caused Novartis not to price in a way that could obtain a significant MCV4 share at Sanofi’s pediatric loyalists because the Bundle created bundled penalties that prevented Novartis from gaining any significant portion of Sanofi pediatric loyalists with an incremental price cut. In contrast, in the but-for world, Sanofi Pediatric loyalists would not face bundled penalties for switching to Menveo and would have incremental Menactra prices only \$4.10 lower than customers who were not Sanofi Pediatric loyalists.<sup>772</sup> Thus, in the but-for world, Novartis could have gained significant portions of *both* Sanofi pediatric loyalists and non-loyalists with any incremental price cut.

416. Moreover, in the but-for world, the difference in incremental Menactra prices would be so small (\$4.10) that Novartis could easily price discriminate by charging slightly lower prices to Sanofi Pediatric loyalists, who received slightly lower Menactra prices. As I explained in my opening merits report, Novartis could not price discriminate sufficiently to overcome the Bundle’s market division in part because the bundled Penalties were large and the VFC program limited Novartis’ ability to price discriminate.<sup>773</sup> About 40% of Menveo is sold through the VFC program and VFC regulations require that Novartis’ VFC price be no higher than its lowest private-sector price, meaning that Novartis must lower the VFC price if it reduces one of its private sector prices below the current VFC price.<sup>774</sup> This means Novartis will not reduce any of its private-sector prices below the VFC price unless doing so increases Novartis’ sales to private-sector

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<sup>771</sup> Rubinfeld Report ¶343.

<sup>772</sup> Elhauge Merits Report ¶180.

<sup>773</sup> Elhauge Merits Report ¶185.

<sup>774</sup> Elhauge Merits Report ¶185.

customers enough to offset the lost profits on VFC sales due to having to reduce the VFC price too.

417. With the Bundle, a PBG member following the ACIP schedule in April 2010 would have an incremental Menactra price (after accounting for bundled penalties) of only \$9.15, meaning that Novartis would have to charge less than \$9.15/dose in order for such a customer to save money by switching to Menveo, after accounting for the bundled penalties on Sanofi's Pediatric vaccines.<sup>775</sup> In contrast, the incremental Menactra price for a disloyal customer on Sanofi's GPO Access program in April 2010 was \$102.66.<sup>776</sup> The Bundle's enormous disloyalty penalties thus would require Novartis to price discriminate over an enormous range (around \$102 to disloyal Sanofi customers versus around \$9 for loyal Sanofi customers) and reduce the VFC price to around \$9 to overcome the Bundle's market division.<sup>777</sup> Cutting the VFC price that much to gain restrained customers would not be profit-maximizing. Sure enough, Novartis' price data shows that "Novartis' pricing strategy focused on winning sales at unrestrained customers by pricing in the area just below the Menactra disloyal price, rather than trying to cut prices enough to win significant sales at restrained customers by dropping prices down to the red line. This is consistent with what market division theory predicts, what Novartis' internal documents said it was doing because of the Bundle, and with the natural economic incentives created by Bundle and the size of Sanofi's bundled penalties."<sup>778</sup> Figure 12 from my opening merits report (reproduced below) shows this.

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<sup>775</sup> Elhaug Merits Report ¶172-73, 179-80.

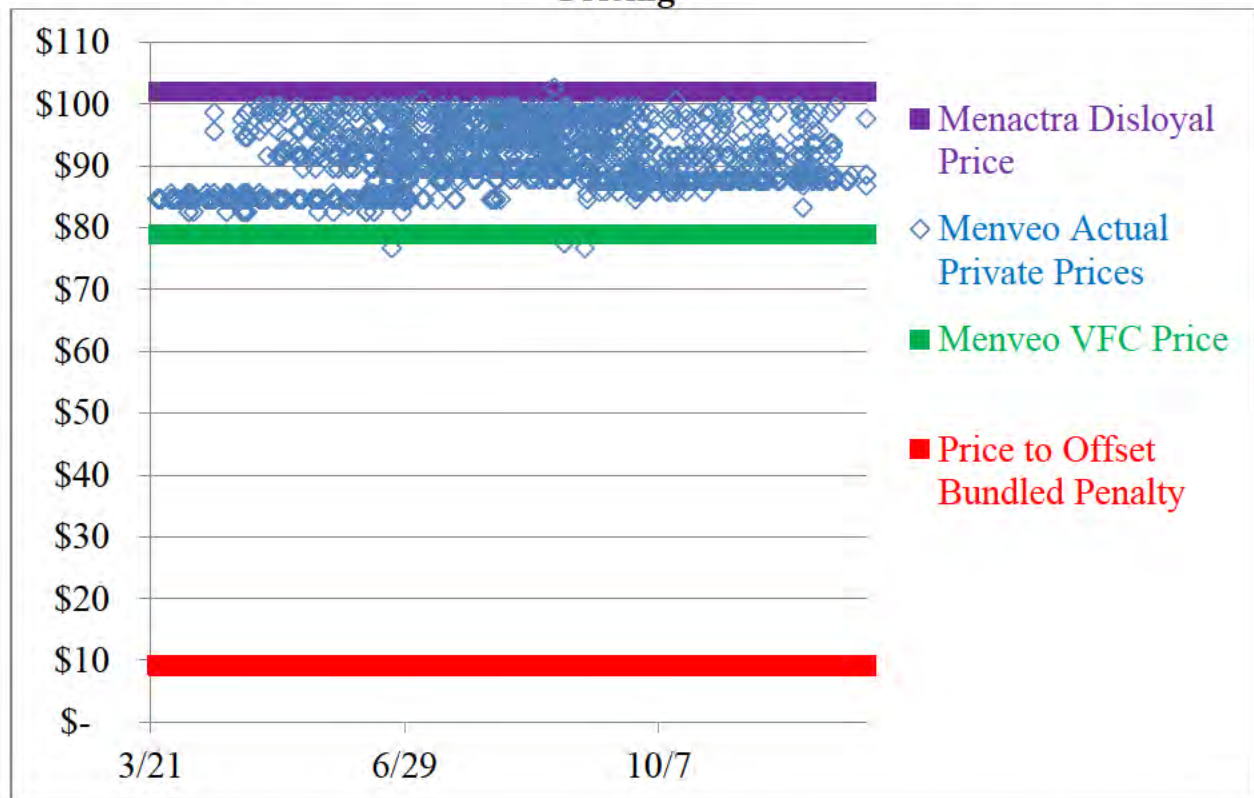
<sup>776</sup> "172 List and Contract Prices by Contract Type.xls".

<sup>777</sup> Elhaug Merits Report ¶186.

<sup>778</sup> Elhaug Merits Report ¶187.



**Elhauge Opening Merits Report Figure 12: 2010 Menveo Private Sector Pricing<sup>779</sup>**



418. In contrast, *without* the Bundle there would hardly be any difference in incremental Menactra prices between customers. Without bundled penalties, Menactra’s incremental price for customers loyal to Sanofi Pediatric vaccines would simply equal its nominal loyal price (\$98.56 for PBG members in April 2010), meaning Novartis would only have to price Menveo less than \$98.56 for PBG members to save money by switching to Menveo. As Figure 12 of my opening merits report (reproduced above) shows, \$98.56 is still well above Menveo’s actual VFC price, so the VFC program would not limit Novartis from providing slightly lower prices to customers receiving loyal Menactra prices in the absence of the Bundle. Further, because Menactra’s incremental Menactra price would be only \$4.10 higher than for disloyal customers (\$102.66) without the Bundle, Novartis would never have to sacrifice a significant amount of VFC profits

<sup>779</sup> “Merits2242 Menveo Price Range.xlsx”. This chart excludes public entities, both because they are not in the class and because public purchaser prices do not bear on the VFC price cap. It also excludes administrative fees because those are paid to PBGs, not private customers, and thus also do not bear on the VFC price cap.

with any marginal price cuts below the prevailing VFC floor in order to attract customers receiving loyal Menactra prices.

419. In sum, there is no evidence indicating that Sanofi's charging slightly higher (\$4.10) Menactra prices to customers who are not loyal to Sanofi Pediatrics would divide the MCV4 market in the but-for world.

*2. A Small, Single-Product Loyalty Discount on Menactra Would Not Divide MCV4 Market.*

420. Professor Rubinfeld argues that Sanofi could have continued using single-product loyalty contracts for Menactra (i.e., conditioning Menactra's loyal price on loyalty to Menactra) in the but-for world and that this would still have anticompetitively divided the MCV4 market.<sup>780</sup> Single-product loyalty contracts *can* divide markets under the right conditions. But Professor Rubinfeld ignores that those conditions do not apply to the MCV4 market because unlike the Bundle, the remaining single-product loyalty discount on Menactra: (a) would have no restraining effect, and (b) would not require Novartis to price discriminate implausibly to overcome it.

421. **a. Single-Product Loyalty Discount on Menactra Would Have No Restraining Effect on Customer Decisions.** The Bundle divided the MCV4 market because it significantly reduced Novartis' incentive to cut prices to restrained customers by significantly reducing the portion of restrained customers Novartis would gain with any price cut.<sup>781</sup> In contrast, the evidence indicates that a single-product Menactra loyalty contract would not have the same market-dividing effect, for two reasons.

422. *First*, the price difference depending on whether a customer was loyal to Menactra would be significantly smaller for a hypothetical Menactra single-product loyalty contract than it is with Sanofi's Bundle in place. For example, in April 2010 the disloyalty penalty for a single-product Menactra loyalty contract would equal the difference between Menactra's loyal PBG contract price (\$98.56) and its disloyal GPO access contract price (\$102.66), which was only \$4.10 per MCV4 dose.<sup>782</sup> In contrast, in the actual world with the Bundle, a PBG member

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<sup>780</sup> Rubinfeld Report ¶¶342-344.

<sup>781</sup> Elhauge Merits Report ¶181.

<sup>782</sup> "172 List and Contract Prices by Contract Type.xls".

following the ACIP schedule would have to pay significantly higher prices on Sanofi's Pediatric vaccines, resulting in a bundled penalty of \$89.41 per MCV4 dose.<sup>783</sup>

423. Indeed, Professor Rubinfeld's claim here that this relatively small \$4.10 single-product disloyalty penalty would have sufficed to restrain and divide the MCV4 market conflicts with his claim elsewhere in his report that the much larger bundled disloyalty penalties caused by the Bundle were too small to restrain or divide the MCV4 market. Although his own data analysis erroneously understates those actual bundled penalties, it still shows that the average bundled disloyalty penalty were \$32.93, which is about eight times larger than the single product disloyalty penalty of \$4.10.<sup>784</sup> His claim there that bundled loyalty penalties of over 30% did not suffice to divide the market clearly contradicts his claim here that a single product loyalty penalty of 4% does suffice.

424. Professor Rubinfeld's argument that the single product loyalty discount was what divided the market also conflicts with Novartis deposition testimony that their decision to target GSK loyal customers was due to Sanofi's bundling, rather than the fact that loyal Menactra prices were slightly lower than disloyal Menactra prices.<sup>785</sup>

425. *Second*, a single-product Menactra loyalty discount would not significantly restrain customer decisions because the evidence indicates customers prefer to standardize on a single MCV4 vaccine anyway. I have shown previously that customers prefer to standardize on a single MCV4 vaccine,<sup>786</sup> meaning that they prefer to buy either 100% Menveo or 100% Menactra (rather than a mix of the two) for reasons besides their contractual terms. Because a single-product loyalty discount on Menactra would only increase *Menactra's* price if a customer bought Menveo, and customers generally would not buy any Menactra anyway if they switched to Menveo (because of the standardization preference), customers generally would not face *any* disloyalty penalty for switching to Menveo if the Bundle did not exist. Thus, the fact that customers prefer to standardize on a single

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<sup>783</sup> Elhauge Merits Report Table 8. I show below in Part V.F that even under conservative assumptions the average bundled penalty for restrained customers was \$46.75

<sup>784</sup> See *infra* Part V.F.3.

<sup>785</sup> [REDACTED]

<sup>786</sup> Elhauge Merits Report ¶226.

MCV4 vaccine means that a single-product loyalty discount on Menactra would not significantly restrain customers' purchases of Menveo.

426. In contrast, with the Bundle, a customer's price for not only Menactra, but also Sanofi's Pediatric (DTaP, Hib, and Polio) vaccines increases if the customer switches to Menveo. Consequently, even if a customer switches 100% to Menveo, with the Bundle the customer would face a large disloyalty penalty in the form of: (a) significantly higher prices on the Sanofi Pediatric vaccines it continued to purchase, and/or (b) having to purchase a less-preferred Pediatric vaccine from another manufacturer (such as GSK) in order to avoid the higher prices on Sanofi Pediatric vaccines.

427. **b. A Single-Product Loyalty Discount on Menactra Would Not Require Novartis to Price Discriminate Implausibly to Overcome It.** As I just explained above in Part V.A.1, in the but-for world the small (\$4.10) difference in incremental Menactra prices between customers loyal and disloyal to Sanofi Pediatric vaccines is not large enough to divide the MCV4 market. In the but-for world, Novartis could easily compete aggressively for both customers receiving loyal Menactra prices and customers receiving disloyal Menactra prices by simply charging slightly lower (\$4.10 lower) prices to those receiving loyal Menactra prices. In contrast, in the actual world doing so would not cause a significant share of restrained customers to switch to Menveo because the enormous bundled penalties on Sanofi's Pediatric vaccines would far outweigh any MCV4 cost-savings Novartis could offer with a cheaper Menveo price.

***B. Bundle Caused Sanofi and Novartis to Compete Less Aggressively on Price***

428. In my opening merits report, I showed that Novartis believed that the Bundle divided the MCV4 market and that Novartis decided to price Menveo less aggressively because the Bundle had divided the market.<sup>787</sup> In particular, Novartis recognized that the Bundle limited the number of restrained customers it could gain with any price cuts, and therefore Novartis decided to focus on pricing just low enough to gain unrestrained customers. [REDACTED]

<sup>787</sup> Elhauge Merits Report ¶¶165-170.

<sup>788</sup> Elhauge Merits Report ¶166, [REDACTED]





*unrestrained* customers, which was 30%, or over 3 times higher than its share among restrained customers.<sup>793</sup> Menveo's significantly lower share among restrained customers is exactly what one would predict the Bundle to cause, and is consistent with the Bundle significantly reducing the share of restrained customers Novartis could gain by cutting price.

430. Novartis' 9% share among restrained customers (which again, is less than a third of its share among unrestrained customers), reflects the facts that: (a) Sanofi's contracts do functionally allow some limited Menveo purchases (for example the requirement that 4P systems buy 90% of their MCV4 from Sanofi); (b) a small portion of restrained customers buy few Sanofi Pediatric vaccines, and thus face much smaller bundled Penalties than the average restrained customer; and (c) a small portion of any set of customers will contain some with unusually strong preferences for Menveo.

431. Novartis need not have a 0% share among restrained customers for the market to be divided. Limiting Menveo's share to 9% among restrained customers still: (a) reduces the incentives of Sanofi to cut Menactra prices below monopoly levels, given that it could keep a dominant 91% share without doing so; and (b) reduces the incentives of Novartis to cut Menveo prices, given that it would gain only a small share of restrained customers by doing so.

432. Professor Rubinfeld also points to the fact that Menveo's share among restrained customers grew from 6% in 2010 to 10% in 2012,<sup>794</sup> but omits that Menveo's share grew substantially faster among unrestrained customers: from 15% in 2010 to 34% in 2012.<sup>795</sup> Thus, analyzing Menveo's shares over time confirms not only that its share among restrained customers was significantly lower than its share among unrestrained customers at any given point in time, but also that the Bundle significantly reduced the growth of Menveo's share at restrained customers.

433. Professor Rubinfeld also argues the MCV4 market could not have been divided based on his premise that [REDACTED]

[REDACTED]

[REDACTED]

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<sup>793</sup> Elhauge Merits Report Figure 15.

<sup>794</sup> Rubinfeld Report ¶345.

<sup>795</sup> "MRebut2228 Menveo Share R vs U by year.xlsx".



<sup>796</sup> But that document does not actually state that Menveo exceeded its target among *restrained* Sanofi PBG customers, but instead just among any customers that use a “PBG” (i.e., including customers on GSK and Novartis PBGs). Indeed, elsewhere in that same document Novartis makes clear that Sanofi’s Bundle *did* restrain Novartis from winning restrained customers. [REDACTED]

[REDACTED].<sup>797</sup> [REDACTED]

[REDACTED]

[REDACTED]

<sup>798</sup> Moreover, this same document shows that the Bundle’s restraint caused Novartis to compete less aggressively for restrained customers, [REDACTED]

[REDACTED]

<sup>799</sup> Thus, this Novartis document Professor Rubinfeld cites actually strongly supports my conclusion that the Bundle divided the MCV4 market.

434. Professor Rubinfeld also claims that Menveo’s share among FSS customers is inconsistent with the market division,<sup>800</sup> but I show the errors in this FSS share analysis below in Part V.D.

**435. b. Sanofi’s 70% Share Among Unrestrained Customers (as Compared to 91% Among Restrained) Does Not Refute the Market Division.**

Professor Rubinfeld argues that Sanofi’s 70% share among unrestrained customers is inconsistent with the market division,<sup>801</sup> but he omits the fact that Sanofi has a significantly higher 91% share among restrained customers, despite continuing to charge monopoly prices for Menactra. The 70% Menactra share in the unrestrained market share simply reflects the fact that Menactra had a strong differentiated product advantage that would have given it a large market share even without the Bundle, as Professor Rubinfeld himself emphasizes in Part VIII.C.3 of his report.<sup>802</sup> The market division here was not a garden-variety absolute market division that gives each firm 100% market share in its allocated portion of the market. Instead, the Bundle divided the market in a way that lessened the

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<sup>796</sup> Rubinfeld Report ¶345, [REDACTED]

<sup>797</sup> [REDACTED]

<sup>798</sup> [REDACTED]

<sup>799</sup> [REDACTED]

<sup>800</sup> Rubinfeld Report ¶346.

<sup>801</sup> Rubinfeld Report ¶349.

<sup>802</sup> Rubinfeld Report ¶¶468-483.

incentives of both firms to lower prices. In the restrained part of the market, the restraint meant it was not profitable for Novartis to try to expand Menveo market share beyond 9% by further undercutting Menactra prices. This meant Sanofi had less incentive to cut Menactra prices, which in turn by operation of its contract elevated Menactra prices to unrestrained customers. But even in the unrestrained part of the market, the level of market differentiation was sufficiently high that it was not profitable for Novartis to try to expand Menveo market share beyond 30% by further undercutting Menactra prices. Professor Rubinfeld does not claim that a market division that creates such adverse price effects would not be anticompetitive, and thus his observation that Sanofi had a 70% share in the unrestrained part of the market is irrelevant to whether the Bundle imposed an anticompetitive market division.

436. **c. The Fact that Menveo's Nominal Prices Were Sometimes Remotely Similar to Sanofi's Nominal Loyal Prices Does Not Refute Market Division.** Professor Rubinfeld argues that Novartis was able to “effectively compete” for restrained customers based on the premise that Menveo’s price was sometimes in a similar range as Menactra’s *nominal* price for restrained customers.<sup>803</sup> Professor Rubinfeld is wrong because he is just ignoring the enormous bundled penalties that made it impractical for a typical restrained customer to switch to Menveo even if Menveo’s nominal price was below Menactra’s nominal price. The market division does not depend on Novartis’ inability to offer Menveo to restrained customers at prices similar to Menactra’s *nominal* prices. The market division instead depends on the fact that the Bundle deterred Novartis from cutting market prices enough to compete successfully for the lion’s share of restrained customers, who could face *incremental* Menactra prices as low as \$9.15 due to the bundled penalties. Figure 12 of my opening merits report illustrated that Novartis’ actual pricing generally ranged between Menveo’s VFC price (about [REDACTED]) and Menactra’s list price (\$102 or higher), and was nowhere nearly as low as the \$9.15 price Novartis would have to charge for a PBG customers following the ACIP schedule to save money by switching to Menveo, after accounting for the Bundled penalties on Sanofi Pediatric vaccines. Internal Novartis documents I cited in my opening merits report confirm that the Bundle did successfully cause Novartis to focus their sales efforts and pricing on unrestrained customers.<sup>804</sup>

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<sup>803</sup> Rubinfeld Report ¶347.

<sup>804</sup> Elhauge Merits Report ¶¶168-169, citing [REDACTED].

437. **d. Three Anecdotes of Restrained Customers Considering Menveo Does Not Refute Market Division.** Professor Rubinfeld also argues that *three* anecdotes of restrained customers that considered switching to Menveo refute the market division.<sup>805</sup> These three anecdotes constitute less than 0.1% of class members.<sup>806</sup> Pointing out that less than 0.1% of Class members merely *considered* buying Menveo, according to Sanofi internal documents, does not refute the substantial, systematic evidence showing that the Bundle imposed a significant restraint on customer decisions and caused Novartis to price less aggressively.

438. Professor Rubinfeld relatedly asserts that any market division is disproven by the fact by Sanofi offered individualized discounts to these same 0.1% of class members.<sup>807</sup> But Sanofi's data actually shows that one of them (Sharp) *never* received individualized discounts on Menactra,<sup>808</sup> and that the other two received individualized discounts on less than 3% of their Menactra purchases since Menveo entry.<sup>809</sup> More generally, Sanofi's transaction data shows that only 0.4% of Menactra doses purchased by class members since Menveo's entry included management exceptions (i.e., individualized discounts) on Menactra.<sup>810</sup> This is consistent with Sanofi documents acknowledging that it generally did not need to provide discounts on Menactra to restrained customers because the Bundle protected them.<sup>811</sup>

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<sup>805</sup> Rubinfeld Report ¶348. Professor Rubinfeld lists only three customers: (1) the Sharp-Rees health system, (2) the Agoura West Valley hospitals, and (3) a doctor's office named Pediatric Associates.

<sup>806</sup> There are over 21,000 class members, *see* Elhauge Merits Report ¶369, and Professor Rubinfeld's three anecdotes represent only 5 class members. "MRebut348 Rubin para 348 class member count.txt".

<sup>807</sup> Rubinfeld Report ¶348.

<sup>808</sup> Sanofi data shows Sharp received the standard Menactra contract price for systems in all months in which it purchased Menactra. "MRebut348 sharp cont price vs median 4p.csv". Sanofi data also shows that Sharp never received any management exceptions on its Menactra purchases. "MRebut348 Rubin para 348 Management Exceptions.txt".

<sup>809</sup> "MRebut348 Rubin para 348 Management Exceptions.txt".

<sup>810</sup> "MRebut348 class mct doses with me.csv".

<sup>811</sup> Elhauge Merits Report ¶122, citing CPP0000750 (email from Jeff Lovelace of Sanofi to Jeff Ziegler of Nationwide Children's, dated August 10, 2011, stating that the "lead physician for this group of two offices is looking at Menveo as an alternative to Menactra for the price," and that this group has "asked for a price match for Menactra" but that "this is not something that Sanofi decides on lightly and have turned down most price match situations"); SP 00827165 at SP 00827168 (March 2010 internal Sanofi slideshow titled "Menactra – Menveo Price Match Process." The cited slide describes the "Scope of Price Match" as "Not proactively or often used;

### *C. Tying Tests*

439. In my opening merits report, I explained that three different tests indicated that Sanofi's Bundle was economically equivalent to tying: (1) the unbundled price of the allegedly tying product (Pediatric vaccines) exceeds the but-for Pediatric vaccine price,<sup>812</sup> (2) the unbundled price of the allegedly tying product exceeds the price before the Bundle was introduced,<sup>813</sup> and (3) noncompliant purchases of Menveo were less than 10% of the sum of noncompliant Menveo purchases and compliant Menactra purchases.<sup>814</sup> Professor Rubinfeld's attempts to refute this analysis fail.

#### *1. Unbundled Price of Sanofi Pediatric Vaccines Exceeds Pre-Bundle Price*

440. Professor Rubinfeld admits that a bundled "discount" is economically equivalent to tying and a "sham" discount if the unbundled price of the alleged tying product (here Sanofi Pediatric vaccines) exceeds the pre-bundle price of that product.<sup>815</sup> The simple logic underlying this test is that a bundled "discount" is a "sham" if it is not actually providing lower prices to any customers than they would have received if the bundle had never been added, and instead is merely raising the price for those that do not comply with the new bundled condition. Here, the evidence clearly indicates that Sanofi did not reduce its Pediatric vaccine prices at all when it added the Bundle, and thus that it is a "sham" bundled discount economically equivalent to tying.

441. **a. Sanofi Did Not Reduce Pediatric Vaccine Prices When It Added the Bundle.** I showed in my opening merits report that Sanofi did not reduce its Pediatric prices *at all* when it added the Bundle in mid-2009.<sup>816</sup> Before Sanofi added the Bundle, its Pediatric PBG contract prices were conditioned only on loyalty to Sanofi's *Pediatric* vaccines. When Sanofi added the Bundle, it did not reduce PBG contract prices *at all*, but these exact same PBG contract prices

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last line of defense. When a customer mentions a competitive offer, representatives will reinforce the Menactra argument and current portfolio benefits first; resort to price match only if necessary. Customers will be informed that price match is available for only one order.”).

<sup>812</sup> Elhauge Merits Report ¶193.

<sup>813</sup> Elhauge Merits Report ¶193.

<sup>814</sup> Elhauge Merits Report ¶¶194-196.

<sup>815</sup> Rubinfeld Report ¶352-54.

<sup>816</sup> Elhauge Merits Report Part V.B.

were now conditioned on Menactra loyalty.<sup>817</sup> Sanofi's Bundle is thus the prototypical example of a "sham" Bundled "discount" that is economically equivalent to tying.

442. For example, before the Bundle, a customer loyal to Sanofi's Pediatric vaccines would be eligible for Sanofi's PBG contract and pay a \$50.486 contract price for Pentacel.<sup>818</sup> In contrast, after Sanofi added the Bundle, a customer loyal to Sanofi's Pediatric vaccines would be eligible for this same \$50.486 Pentacel price only if they *also* committed to Menactra loyalty. A customer who was loyal to Sanofi's Pediatric vaccines, but either was unwilling to commit to Menactra loyalty or was terminated from its PBG contract for violating the Menactra loyalty commitment, would instead have to pay the disloyal Pentacel price of \$69.160.<sup>819</sup> Thus, for customers who were loyal to Sanofi's Pediatric vaccines, the pre-Bundle Pentacel price was \$50.486. In contrast, after the Bundle, the unbundled price for Sanofi Pediatrics (for customers loyal to Sanofi Pediatrics but disloyal to Menactra) was \$69.160. This same pattern holds for Sanofi's other Sanofi Pediatric vaccines and for Sanofi's 4P system contracts. The unbundled prices for Sanofi's Pediatric vaccines therefore exceed the pre-bundle prices for those vaccines, meaning Sanofi's Bundle is economically equivalent to tying.

443. Because Professor Rubinfeld cannot (and does not) dispute these basic facts showing that the unbundled Sanofi Pediatric prices exceeds the pre-Bundle Sanofi Pediatric prices, he makes several red herring arguments that have no relevance to this test. I discuss them in the following sections.

444. **b. Sanofi Did Not Need to Increase the Non-Contract Price to Impose the "Sham" Bundled Discount.** Professor Rubinfeld asserts that the Bundle is not a "sham" because "Sanofi did not change the non-contract price for pediatric vaccines before and after the introduction" of the Bundle.<sup>820</sup> This argument fails because, as the above discussion just showed, Sanofi did not need to change its non-contract price in order to make the unbundled Sanofi Pediatric vaccine price exceed the pre-Bundle Sanofi Pediatric price. One can create a

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<sup>817</sup> Elhauge Merits Report ¶137.

<sup>818</sup> Customers who are not loyal to Sanofi's Pediatric vaccines are irrelevant to this analysis because they would not be eligible for Sanofi's loyal Pediatric prices regardless of whether they bought Menactra or Menveo.

<sup>819</sup> Elhauge Merits Report Figure 9.

<sup>820</sup> Rubinfeld Report ¶356.



“sham” Bundle simply by adding a new condition to an old price, and that is exactly what Sanofi did here.

445. For example, suppose a firm is a monopolist in the product A market and faces competition for the first time in the product B market. Before this firm faced competition in the product B market, it charged \$100 for product A to customers who bought at least 1,000 units, but \$200 all other customers. In response to new competition in the product B market, this firm simply adds a new condition to its \$100 price for product A: now customers must *not only* buy 1,000 units of Product A, *but also* buy product B solely from the bundler. For customers who don’t buy 1,000 units of Product A, this new bundled condition does not affect their prices and therefore is irrelevant to them. But for customers who *do* buy 1,000 units of Product A, the unbundled price for Product A is now \$200, which is double their pre-Bundle price of \$100. In this hypothetical, the bundled “discount” is clearly a sham that provides no benefit to customers and only imposes new penalties. My analysis would correctly indicate that this is a sham discount, whereas Professor Rubinfeld would incorrectly conclude that it was not a sham simply because some customers (those who were never buying 1,000 units of Product A to begin with) did not have their prices change.

446. The “discount” in Sanofi’s Bundle is a “sham” in the exact same way the “discount” in my hypothetical bundle is. Before Sanofi faced competition in the MCV4 market, it charged \$50.486 for Pentacel to customers who *were* loyal to Sanofi’s Pediatric vaccines, and \$69.160 for Pentacel to customers who were *not* loyal to Sanofi’s Pediatric vaccines. Menactra’s requirement that PBG members be loyal to Sanofi’s Pediatric vaccines even before it added the Bundle is thus analogous to the volume discount in the hypothetical above. In mid-2009 Sanofi faced imminent competition for the first time in the MCV4 market, so Sanofi added a new condition to its \$50.486 PBG price for Pentacel: now customers must *not only* be loyal to Sanofi’s Pediatric vaccines, but also commit to Menactra loyalty. For customers who are *not* loyal to Sanofi’s Pediatric vaccines, this new Bundle condition has no effect on their prices and is irrelevant to them. But for customers who *are* loyal to Sanofi’s Pediatric vaccines, they can no longer receive the \$50.486 PBG price for Pentacel if they do not commit to Menactra loyalty or are kicked off their PBG contract for buying Menveo, and consequently would have to pay the \$69.160 Pentacel price under Sanofi’s GPO Access or Non-Contract programs. Thus, for customers who are loyal to Sanofi Pediatric vaccines, the unbundled Pentacel price (\$69.160) is 37% higher than the pre-bundle Pentacel price (\$50.486). This illustrates that the “discount” in Sanofi’s

Bundle is a sham that makes the Bundle economically equivalent to tying, just like the hypothetical above.

447. **c. The Fact That Some Customers Paid Non-Contract Prices for Sanofi Pediatric Vaccines Does Not Refute That the “Discount” in Sanofi’s Bundle Is a Sham.** Professor Rubinfeld also argues that the “discount” in Sanofi’s Bundle is not a sham because “Sanofi’s non-contract prices were real prices paid by customers both before and after the challenged conduct was implemented.”<sup>821</sup> Professor Rubinfeld notably does not cite any academic literature for the proposition that a bundle is not economically equivalent to tying if any customers ever pay the unbundled price for the allegedly tying product. Nor would such a rule make any economic sense.

448. For example, in the hypothetical above, customers who don’t buy 1,000 units of Product A paid the unbundled price for Product A (\$200) both before and after the firm added the sham “discount” as part of its bundle. Although the “discount” in the hypothetical bundle is by definition a sham, Professor Rubinfeld would incorrectly conclude that it was not a sham simply because customers who did not buy a large enough volume of product A were never eligible for the \$100 price. Likewise, in this case customers who are not loyal to Sanofi Pediatric vaccines have never been eligible for Sanofi’s PBG contract prices, and thus paid Sanofi’s “non-contract” Pediatric prices both before and after Sanofi added the Bundle. But that does not change the fact that, for customers who are loyal to Sanofi’s Pediatric vaccines, the Pediatric prices they must pay if they violate the new bundled condition (the “non-contract” Sanofi prices) are significantly higher than the prices they paid before Sanofi added the Bundle.

449. There will always be some purchases of the tying product at the “unbundled” price so long as the unbundled price is below the “choke” price (the lowest price at which *no* customers would demand the tying product),<sup>822</sup> even if the unbundled price is well above the profit-maximizing price the bundler would charge in the absence of the bundle. Professor Rubinfeld is thus effectively arguing that a bundled discount is not a sham unless the unbundled price of the tying price is set higher than the choke price of that product (resulting in zero sales at the unbundled price). Professor Rubinfeld does not cite any academic literature

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<sup>821</sup> Rubinfeld Report ¶356.

<sup>822</sup> Patrick Greenlee, David Reitman & David S. Sibley, *An Antitrust Analysis of Bundled Loyalty Discounts*, 26 INT’L J. INDUS. ORG. 1132, 1135-36 (2008).

for that proposition, and he has never stated this requirement previously in his own academic literature on bundling.

450. **d. Sanofi Contracts Do Bundle at the Purchaser Level.** Professor Rubinfeld claims that the “discount” in Sanofi’s Bundle is not a sham based on his incorrect claim that Sanofi’s contract do not bundle at the purchaser level.<sup>823</sup> I refuted this incorrect claim by Professor Rubinfeld above in Part II.

451. **e. A 1% Sham Discount Would Still Be a Sham Discount With No Procompetitive Justification.** Even though Professor Rubinfeld admits elsewhere that comparing the unbundled price of the alleged tying product to the pre-bundle price is a valid test,<sup>824</sup> he inconsistently also claims that this test is not appropriate because it would indicate a bundle was economically equivalent to tying “even if Sanofi’s non-contract price was slightly above the contract price for its pediatric vaccines (e.g., even by 1%).”<sup>825</sup> Professor Rubinfeld notably cites no academic literature for his claim that an unbundled price that is only slightly above the but-for or pre-bundle price should not be treated as economically equivalent to tying. Indeed, Professor Rubinfeld’s assertion conflicts with prior economic literature, including the article by Greenlee, Reitman, and Sibley he cites.<sup>826</sup> Granted, if the difference between the unbundled price and the pre-bundle or but-for price is small, that reduces the magnitude of the consumer welfare harm caused by the bundle, but it does not eliminate its anticompetitive effects. Because even a 1% sham discount is still a sham discount with some anticompetitive effect, it can only impose net anticompetitive effects absent some offsetting efficiencies (which here have not been shown).

## *2. Unbundled Price of Sanofi Pediatric Vaccines Exceeds But-for Sanofi Pediatric Vaccine Prices*

452. Professor Rubinfeld also admits that a bundled “discount” is economically equivalent to tying and a sham discount if the unbundled price of the alleged tying product (here Sanofi Pediatric vaccines) exceeds the but-for price that

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<sup>823</sup> Rubinfeld Report ¶357.

<sup>824</sup> Rubinfeld Report ¶¶353-354.

<sup>825</sup> Rubinfeld Report ¶358.

<sup>826</sup> Patrick Greenlee, David Reitman & David S. Sibley, *An Antitrust Analysis of Bundled Loyalty Discounts*, 26 INT’L J. INDUS. ORG. 1132, 1138 (2008), cited in Rubinfeld Report n. 443. See also Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 450-55 (2009).

would have been charged for that product without the bundle.<sup>827</sup> Here, the unbundled price of Sanofi's Pediatric vaccines exceeds the but-for price of Sanofi's Pediatric vaccines, as indicated not only by the fact that Sanofi did not reduce its prices at all when it added the Bundle, but also by Professor Rubinfeld's failure to prove (let alone quantify) any procompetitive efficiencies created by the Bundle that were passed on to consumers.<sup>828</sup> All of Professor Rubinfeld's criticisms of this tying test fail for the same reasons that his criticisms of the other price-based test (comparing unbundled prices to pre-bundle prices) fail.

### *3. Compliance-Based Tests*

453. A third test asks whether the compliance rate with the Bundle is sufficiently high that it should be deemed economically equivalent to a tie.<sup>829</sup> "This compliance test asks whether purchases of the rival tied product (here Menveo) by those who bought the tying product (Sanofi pediatric vaccines) but rejected the bundle despite the threatened bundled penalty are below 10% of the sum of those purchases plus purchases of the defendant's tied product (here Menactra) by those who accepted the bundle."<sup>830</sup> I calculated these compliance rates at both: (1) group level (i.e., calculating compliance by PBG, GPO, or 4P system), and (2) the individual purchaser level. I found that noncompliant Menveo purchases were less than 10% of the sum of noncompliant Menveo purchases and compliant Menactra purchases under both methodologies.<sup>831</sup> Thus, both price- and compliance-based tests indicate that Sanofi's Bundle is economically equivalent to tying. Professor Rubinfeld's criticisms of these compliance-based tests all fail.

**454. a. Compliance-Based Test Indicates Sanofi's Bundle Is Economically Equivalent to Tying Regardless of Whether One Calculates Compliance at Group Level or Purchaser Level.** Professor Rubinfeld argues that these compliance-based tests should measure compliance at the individual purchaser level, as opposed to the group (i.e., PBG, GPO, or health system) level, based on his premise that "Sanofi PBG contracts provide substantial additional flexibility for individual providers."<sup>832</sup> I showed above in Part II that Sanofi's

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<sup>827</sup> Rubinfeld Report ¶352-54.

<sup>828</sup> See *supra* Part III.

<sup>829</sup> Elhauge Merits Report ¶194, citing X AREEDA, ELHAUGE, & HOVENKAMP, ANTITRUST LAW ¶1758b (1996).

<sup>830</sup> Elhauge Merits Report ¶194.

<sup>831</sup> Elhauge Merits Report ¶¶195-196.

<sup>832</sup> Rubinfeld Report ¶360.

contracts and enforcement practices actually do not provide much “flexibility” for individual providers; 4P system customers must purchase at least 90% of their MCV4 from Sanofi, and the majority of PBG member commitment agreements require members to purchase 100% of their MCV4 from Sanofi. But in any event, I performed the compliance-based tests at both the group and individual purchaser levels and both indicate that Sanofi’s Bundle is economically equivalent to tying.<sup>833</sup>

455. **b. The 1996 Areeda Treatise Does Not State that Attribution Test Is Superior to the Compliance-Based Test.** Professor Rubinfeld incorrectly asserts that the 1996 edition of the antitrust law treatise, in which Professor Areeda and I participated, states that the attribution test is superior to the compliance-based test that it offers.<sup>834</sup> The quote that Professor Rubinfeld mistakenly attributes to the 1996 edition never appeared in it, and it was never approved by either Professor Areeda or by myself. It was instead unilaterally added by Professor Hovenkamp in subsequent editions. Any preference for the attribution test would be economically misguided, for reasons I have explained in my scholarship.<sup>835</sup>

456. **c. The Compliance-Based Test Correctly Excludes Menveo Sales to Customers Complying with the Bundle and Menactra Sales to Unrestrained Customers.** Professor Rubinfeld criticizes the compliance-based test offered by the Areeda treatise, arguing that it should be changed to include Menveo sales to compliant customers and Menactra sales to non-compliant customers.<sup>836</sup> He cites no academic literature in support of this claim, and it contradicts both the text of the Areeda treatise and the logic of the test. The Areeda treatise states that the proper compliance test is to calculate: (a) the total purchases of the rival tied product (here Menveo) made by customers who were non-compliant with the bundling condition, divided by (b) the sum of that plus the total purchases of the bundler’s tied product (here Menactra) made by customers compliant with the bundling condition.<sup>837</sup>

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<sup>833</sup> Elhauge Merits Report ¶195 (compliance measured at group level); ¶196 (compliance measured at individual purchaser level).

<sup>834</sup> Rubinfeld Report n. 451, citing Volume X Areeda, Elhauge, & Hovenkamp, *Antitrust Law* ¶ 1758f (1996).

<sup>835</sup> Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 462-64 (2009).

<sup>836</sup> Rubinfeld Report ¶361.

<sup>837</sup> X AREEDA, ELHAUGE, & HOVENKAMP, ANTITRUST LAW ¶1758b (1996) (“we can look at (i) the volume of B purchased elsewhere (instead of from the defendant as part of the



457. The Areeda treatise correctly states the compliance-based test. The point of the test is to determine whether those subject to the bundling condition are driven to make bundled purchases to an extent similar to those subject to an absolute tying condition. Thus, the test correctly excludes Menveo sales to customers complying with the Bundle because such compliant purchases are within the headroom allowed by the Bundle and thus are outside the scope of the bundling condition. The test also correctly excludes Menactra sales to noncompliant customers because such purchases are also outside the bundling condition and thus could not be driven by the bundle.

458. **d. I Was Right to Exclude Unrestrained Customers When Calculating This Statistic.** Professor Rubinfeld also asserts incorrectly that one should include customers on contracts not requiring Menactra loyalty (non-contract and GPO access) when calculating this compliance-based test.<sup>838</sup> Again, Professor Rubinfeld cites no academic literature in support for this claim, and it contradicts the logic of the compliance-based test. The point of this compliance-based test is to determine the extent to which the Bundle drives bundled purchases. Unrestrained customers are not subject to the Bundle to begin with, and therefore one should exclude them when calculating how high the compliance rates are with the Bundle.

459. **e. There Would Be No Bundled Pricing Condition to Begin With in Professor Rubinfeld's Hypothetical With a Contract That Requires Zero Purchases of Menactra.** Professor Rubinfeld argues that the Areeda compliance test must be wrong based on the premise that, if the challenged conduct required zero purchases of Menactra, then everyone would be “compliant.”<sup>839</sup> Professor Rubinfeld is confusing two different concepts: (1) whether bundled pricing amounts to tying, and (2) whether the loyalty threshold is 80% or 100% percent.

460. No one would deny that if Sanofi said a customer cannot buy Sanofi Pediatrics at all unless they buy X% of MCV4 from Sanofi, it would constitute an explicit tie. If the percentage were 80%, it would be a tie on 80% of MCV4 purchases, and if it were low, like 10%, it would be still be a tie, but now on only

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discounted package) by those buying A separately from the defendant and (ii) the volume of B purchased in the discounted package. Dividing #(i) by the sum of #(i) and #(ii) indicates the effectiveness of the defendant's package in including purchases of his tied product B.”).

<sup>838</sup> Rubinfeld Report ¶362.

<sup>839</sup> Rubinfeld Report ¶364.

10% of MCV4 purchases. But if the percentage were zero, it would be a tie on 0% of MCV4 purchases, which is to say no tie at all. The level of the loyalty threshold is of course still relevant to whether the bundle or tie is anticompetitive, but it is not relevant to whether bundled pricing with a particular loyalty threshold is economically equivalent to a tie with that same loyalty threshold.

461. What the compliance-based test measures is whether linking the 80% Menactra condition to penalty prices on Sanofi Pediatric produces similar effects to linking that same 80% Menactra condition to an absolute refusal to sell Sanofi Pediatrics to anyone who violates the condition. Likewise, if a bundle had a small 1% requirement,<sup>840</sup> the Areeda compliance test would measure whether linking the 1% requirement to Sanofi Pediatrics produces the same effects as linking that same 1% requirement to an absolute refusal to sell Sanofi Pediatrics to anyone who violates the condition (i.e., to a tying condition applicable to 1% of purchases). A 1% threshold may be too small to be anticompetitive whether or not an absolute tying condition is imposed, but that is different from the question of whether the bundled pricing has effects similar to a tying condition. It would simply mean such a 1% bundle is not anticompetitive whether or not it is economically equivalent to a 1% tie. But here, where the loyalty threshold was 80-100%, such hypotheticals are not relevant.

462. **f. My Compliance-Based Test is Not a “Secondary” Test.** Professor Rubinfeld asserts incorrectly that the 1996 edition of the antitrust law treatise, in which Professor Areeda and I participated, stated that the compliance test I calculated is a “secondary” test.<sup>841</sup> He not only misquotes the 1996 edition, but also omits a crucial clarifying footnote.

463. Professor Rubinfeld claims that the 1996 Areeda treatise edition states the following (misquoted sections bolded):

“The courts often focus on the share of defendant’s A sales outside the package. This may be accurate enough most of the time, but it gives little sense of the discount’s effectiveness when **the two products are not always used together**. In that event, we want to know what share **of the defendant’s product A is purchased separately by those who use product B**. **If we do not have that data, we can look at** (i) the volume of B purchased elsewhere

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<sup>840</sup> Rubinfeld Report n. 455.

<sup>841</sup> Rubinfeld Report ¶¶365-366.

(instead of from the defendant as part of the discounted package) by those buying A separately from the defendant and (ii) the volume of B purchased in the discounted package. Dividing #(i) by the sum of #(i) and #(ii) indicates the effectiveness of the defendant's package in inducing purchases of its tied product B.”<sup>842</sup>

464. In contrast, the 1996 edition approved by Professors Areeda and myself actually says the following (differences from misquoted version bolded):

“The courts often focus on the share of defendant's A sales outside the package. This may be accurate enough most of the time, but it gives little sense of the discount's effectiveness when **some buyers either do not use both products or use them in proportions different from other buyers.** [Clarifying footnote that Professor Rubinfeld deleted: ‘For example, separate purchases of A by those who need no B hardly means the package discount is less effective than an outright refusal to sell A to the class of buyers who use B. Indeed, a package discount can be an effective way for tying the two items for that class of buyers without impairing separate sales of A to those who do not use B.’] In that event, we want to know what share **is the more precise [precise] measure:** (i) the volume of B purchased elsewhere (instead of from the defendant as part of the discounted package) by those buying A separately from the defendant and (ii) the volume of B purchased in the discounted package. Dividing #(i) by the sum of #(i) and #(ii) indicates the effectiveness of the defendant's package in inducing purchases of its tied product B.”

465. Thus, Professor Rubinfeld’s whole argument that the Areeda treatise I cited indicates I improperly used a secondary test is wrong. The 1996 edition that Professor Areeda and I approved actually states that the compliance test I used is the *more precise* test, not a secondary test. The statement quoted by Professor Rubinfeld was instead unilaterally added by Professor Hovenkamp in subsequent editions, and it is incorrect.

466. **g. Professor Rubinfeld’s Incorrect Technical Criticisms.** Professor Rubinfeld also makes two incorrect technical criticisms that indicate that he (or his

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<sup>842</sup> Rubinfeld Report ¶365, misquoting X Areeda, Elhauge, & Hovenkamp, *Antitrust Law*, 1996, ¶ 1758b.

staff) simply misunderstood the computer programs I used to calculate these compliance-based tying statistics.

467. *First*, Professor Rubinfeld asserts incorrectly that my tying statistics include customers who “do not purchase both [Sanofi] Pediatrics and MCV4.”<sup>843</sup> To the contrary, one line of code in my program explicitly limits the sample to customer-years where that customer bought Sanofi Pediatric vaccines,<sup>844</sup> and my statistic is weighted by MCV4 doses and therefore by definition drops any customers that did not purchase any MCV4 in a given year. Professor Rubinfeld is apparently under the incorrect belief that this tying statistic includes all customers who “purchase either Sanofi Pediatrics or Menactra during the three months prior to Menveo launch.”<sup>845</sup> I actually use customers’ Menactra and Sanofi Pediatric purchases immediately before Menveo entry only to determine what each customer’s Sanofi contract status was before Menveo entry. As just noted, later lines of code in the program then limit the sample to customers who purchased *both* an MCV4 vaccine and Sanofi Pediatrics in a given year.

468. *Second*, Professor Rubinfeld asserts incorrectly that: “when conducting his group level analysis, before determining whether a 4-product health system satisfied the Menactra benchmark, Professor Elhauge drops locations not satisfying the Menactra benchmark. As a result of his methodological approach, many health system doses are excluded from Professor Elhauge’s calculation of the Group Menactra benchmarks.”<sup>846</sup> That is not accurate – the computer program I use does not drop noncompliant customers before calculating the compliance statistics at the group level.<sup>847</sup>

469. **h. Professor Rubinfeld’s Alternative Customer Compliance Test Is Logically Flawed.** After rejecting the Areeda compliance test for when bundling is economically equivalent to tying, Professor Rubinfeld constructs his own logically flawed test.<sup>848</sup> He simply calculates the percentage of private Menactra sales that were made under the Sanofi contract programs that do not

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<sup>843</sup> Rubinfeld Report, n.450.

<sup>844</sup> For example, *see* line 70 of “Merits2295a Tying Test Three.do”.

<sup>845</sup> Professor Rubinfeld n. 450.

<sup>846</sup> Rubinfeld Report n. 448.

<sup>847</sup> Indeed, in the lines of code that calculate the tying statistics at the group level, the program does not even attempt to calculate compliance at the individual purchaser level, so could not drop noncompliant customers. “Merits2295a Tying Test Three.do”.

<sup>848</sup> Rubinfeld Report ¶366.

require Menactra loyalty (non-contract and GPO access).<sup>849</sup> That statistic fails to indicate whether compliance with Sanofi's bundle indicates it is economically equivalent to tying for two key reasons: (1) it fails to measure compliance with Sanofi's bundle in any way; and (2) it does not limit the sample to restrained customers. Indeed, much of Professor Rubinfeld's supposed "share of doses purchased outside the bundle" is actually composed of customers who were not loyal to Sanofi's Pediatric vaccines and therefore were not on Sanofi's PBG and 4P system programs even before Sanofi added the Bundle.

***D. Menveo's Higher Share Among Unrestrained Private Customers is Consistent with the Market Division***

470. **a. Menveo's Higher Share Among Unrestrained Private Customers Is But One of Many Pieces of Evidence Confirming that the Bundle Restrained Customer Decisions.** In my opening merits report, I showed that Menveo's share was significantly higher among unrestrained private customers (30%) than among restrained private customers (9%).<sup>850</sup> Professor Rubinfeld asserts that this comparison, standing alone, does not prove that the Bundle restrained customers from buying Menveo.<sup>851</sup> He suggests that private restrained customers might have simply chosen to buy from Sanofi,<sup>852</sup> but that ignores the fact that Sanofi just imposed the Bundle on these customers because of their PBG membership back in 2009, a time when that membership could not reflect any preference for Menactra or Menveo because Menveo had not entered the MCV4 market yet. Professor Rubinfeld also ignores that this statistic is but one of many pieces of evidence confirming that the Bundle did in fact restrain customer purchases, which also included: (i) my Menveo share regression, which does control for other customer characteristics,<sup>853</sup> (ii) documents and deposition testimony showing that Sanofi and Novartis recognized that the Bundle restrained Menveo sales and divided the MCV4 market,<sup>854</sup> (iii) the bundling commitment

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<sup>849</sup> In one iteration of this test, Professor Rubinfeld limits the sample to customers who bought both Menactra and Sanofi Pediatrics shortly before Menveo entry, but that does not have any practical significance and there is no logic behind it.

<sup>850</sup> Elhauge Merits Report ¶197, Figure 15.

<sup>851</sup> Rubinfeld Report ¶367.

<sup>852</sup> Rubinfeld Report ¶367.

<sup>853</sup> Elhauge Merits Report Part V.E.4.

<sup>854</sup> Elhauge Merits Report Part V.E.1; Part V.B.



terms predictably are economically restraining,<sup>855</sup> (iv) the large size of the bundled penalties confirms the market division,<sup>856</sup> (v) Actual Novartis pricing behavior confirms the market division,<sup>857</sup> and (vi) my differentiated Bertrand model shows that the Bundled anticompetitively raised prices.<sup>858</sup>

471. **b. FSS Shares Do Not Contradict Restraining Effect.** Professor Rubinfeld also argues that the private customers I identified as restrained must not actually be restricted from buying Menveo because, since Menveo entry, Menveo has had a slightly higher share among them (9.4%) than among FSS customers (6.5%), who all sides agree are unrestrained.<sup>859</sup> Sanofi's class expert, Mr. Kaplan, made the same argument and I previously explained that (absent the restraint) one would expect Menveo's share at private restrained customers to be higher than its share at FSS customers because Menveo was priced at a much larger discount (relative to Menactra) at private restrained customers.<sup>860</sup> Professor Rubinfeld responds by claiming that Menveo *wasn't* actually priced at more of a discount relative to Menactra at private restrained customers from January 2012 onward, based on the premises that: (a) the average Menactra price premium at private restrained customers from July 2010 to April 2013 was 6.3%,<sup>861</sup> and (b) the Menactra premium at Big-4 FSS customers from January 2012 to April 2013 ranged from 4.5% to 9.2%.<sup>862</sup> Professor Rubinfeld's argument fails because he is comparing apples-to-oranges: the two statistics he compared are calculated over different date ranges. Figure 1 below shows that the Menactra price premium was higher for private restrained customers than for Big-4 FSS customers in every year.

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<sup>855</sup> Elhauge Merits Report Part III.

<sup>856</sup> Elhauge Merits Report Part V.D.

<sup>857</sup> Elhauge Merits Report ¶¶167-170.

<sup>858</sup> Elhauge Merits Report Part VII.

<sup>859</sup> Rubinfeld Report ¶368.

<sup>860</sup> Elhauge Class Rebuttal Report ¶37.

<sup>861</sup> Rubinfeld Report ¶370, citing Elhauge Merits Report ¶197, which presented the 6.3% statistic. The backup to this statistic shows that it was calculated from July 2010 (the beginning of IMS data) to April 2013 (the end of Novartis price data).

<sup>862</sup> Rubinfeld Report ¶370.

**Figure 1: Menactra Price Premiums Relative to Menveo: Private Restrained Customers vs Big-4 FSS Customers<sup>863</sup>**



### *E. Menveo Share Regression*

472. In my opening merits report, I ran a “Menveo share regression” confirming that the Bundle significantly restrained customers’ choice of MCV4 vaccine.<sup>864</sup> The Menveo share regression indicated that PBG and 4P system customers who bought Sanofi Pediatric vaccines, and thus faced significant bundled penalties on those Pediatric vaccine purchases if they switched from Menactra to Menveo, had significantly lower Menveo shares than PBG and 4P system customers who did *not* buy Sanofi Pediatric vaccines and therefore did not face Bundled penalties.<sup>865</sup> This finding is consistent with all of the other evidence in this case regarding the restraining effect of the Bundle, such as: (a) the large size

<sup>863</sup> “MRbut03 Big-4 FSS vs Priv Restrained MCT Price Premiums Yearly.csv”. This dataset begins in July 2010 (when the Menactra IMS DDD data necessary to calculate MCV4 shares becomes available) and ends in April 2013 (the last month with the Novartis transaction data necessary to calculate private Menveo prices).

<sup>864</sup> Elhauge Merits Report Part V.E.4.

<sup>865</sup> Elhauge Merits Report Table 11.

of the Bundled penalties,<sup>866</sup> (b) Sanofi and Novartis internal documents acknowledging that the Bundle restrained customers from buying Menveo,<sup>867</sup> (c) the high compliance rates with the Bundle's Menactra loyalty requirements,<sup>868</sup> and (d) data showing that Menveo had a significantly lower share among customers restrained by the Bundle than among unrestrained customers.<sup>869</sup>

473. Indeed, Professor Rubinfeld *does not dispute* that Sanofi and Novartis acknowledged that Sanofi's bundled penalties affected customer decisions. Thus, any purported statistical analysis should be immediately suspect if it conflicts with the consensus among contemporaneous Sanofi and Novartis internal documents that the Bundle had significant effects. Thus, it is not surprising that Professor Rubinfeld's claims about the Menveo share regression—that it indicates that the Bundle had little-to-no effect or that the effects that it shows can be explained by factors other than the Bundle—all turn on Professor Rubinfeld either misinterpreting the regression results or modifying my regression in ways that reduce the regression's accuracy.

*1. Professor Rubinfeld Incorrectly Interprets Results*

474. Professor Rubinfeld starts by arguing that I misinterpreted the results of my Menveo share regression, which I reproduce below:

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<sup>866</sup> Elhauge Merits Report Part V.D.

<sup>867</sup> Elhauge Merits Report Part V.E.1.

<sup>868</sup> Elhauge Merits Report Part V.E.2.

<sup>869</sup> Elhauge Merits Report Part V.E.4.

<b>Elhauge Merits Report Table 11: Regression Results</b> <b>Effect of Bundled Disloyalty Penalties on Menveo Share</b> <b>PBGs vs. Systems<sup>870</sup></b>			
<b>Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>p-value (zero null hypothesis)</b>
Buys Pediatric	2.9%	0.6%	< 0.001%
System No Pediatric	-9.3%	1.4%	< 0.001%
System & Buys Pediatric	-13.9%	0.6%	< 0.001%
PBG No Pediatric	1.1%	1.1%	34.0%
PBG & Buys Pediatric	-6.5%	0.6%	< 0.001%
Menactra Price	-0.6%	0.1%	< 0.001%
Choice	10.9%	0.4%	< 0.001%
Texas Choice	9.2%	0.7%	< 0.001%

475. In my opening merits report, I explained that the isolated effect of the bundled penalties on 4P system customers was the difference between the “System No Pediatric” coefficient and the “System & Buys\_Pediatric” coefficient (-4.5 percentage points) and that the isolated effect of the bundled penalties on PBG members was the difference between the PBG No Pediatric” coefficient and the “PBG & Buys\_Pediatric” coefficient (-7.6 percentage points).<sup>871</sup> Accordingly, this regression shows that the isolated effect of the bundled penalties on pediatrics (that is the effect over and above the effect of the bundled loyalty commitment) was to lower the Menveo share by 4.5 percentage points at 4P systems and by 7.6 percentage points at PBG members.

476. In this litigation, Sanofi has claimed that the statistical correlation between being subject to Sanofi’s bundled pediatric penalties and buying less Menveo does not reflect those bundled penalties, but instead reflects a natural link between buying Sanofi pediatric vaccines and Menactra: namely, that buyers who prefer Sanofi pediatric vaccines are inherently more likely to prefer Menactra. As I showed in my opening merits report, this claim conflicts with Sanofi’s contemporaneous documents, which never mention such a natural link but to the contract indicate that Sanofi thought the Bundle was what drove Sanofi pediatric

<sup>870</sup> “Merits3014 Menveo Share Combined Regression (sep sys and pbg interaction).csv”.

<sup>871</sup> Elhauge Merits Report ¶¶208-209.



buyers to buy Menactra.<sup>872</sup> Further, my regression directly tested this natural link theory. In my regression, the “Buys\_Pediatric” variable, which is set to 1 (on) for all customers (restrained or unrestrained) who buy Sanofi Pediatrics, controls for the extent to which customers who buy Sanofi Pediatric vaccines tend to have greater or lesser preference for Menactra relative to Menveo. Here, the fact that the Buys\_Pediatric coefficient is positive 2.9% indicates a “reverse natural link,” i.e., that buying Sanofi Pediatric vaccines makes a customer inherently more likely to prefer Menveo relative to Menactra.<sup>873</sup> As my opening merits also showed, such a reverse natural link likely reflected functional factors. Namely, buyers who preferred reconstituted vaccines were more likely to prefer both Menveo and Sanofi Pediatrics, and buyers who buy Sanofi pediatrics are likely to have younger patients and thus are less likely to be driven to prefer Menactra because of a temporary booster recommendation advantage that was relevant only for older patients.<sup>874</sup>

**477. a. Professor Rubinfeld Is Wrong That My Interpretation of My Regression Relies on the Assumption That “Non-Contract” and “Contract” Customers who Buy Sanofi Pediatrics Have Equivalent Average Preferences for Menactra (relative to Menveo).** Professor Rubinfeld argues that I misinterpreted my regression when I concluded that it measures the effect of the bundled penalties while controlling for the alleged natural link, but the fundamental theoretical premise of Professor Rubinfeld’s “misinterpretation” claim is wrong. Professor Rubinfeld asserts that my interpretation of my regression depends on the assumption that “non-contract and contract customers that buy Sanofi pediatrics have *identical* average preferences for MCV4 vaccines”<sup>875</sup> That is incorrect. My Menveo share regression instead depends merely on the assumption that, if there is a “natural link” between buying Sanofi Pediatric vaccines and a preference for Menactra (relative to Menveo), then it should not exist for “contract” customers (PBG/GPO Performance/4P) but magically disappear for “non-contract” customers (No-Contract, GPO Access), or vice versa. Indeed, Professor Rubinfeld does not even provide a *theoretical* reason (let alone one supported by evidence) why any such “natural link” would differ between “contract” customers and “non-contract” customers.

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<sup>872</sup> Elhauge Merits Report ¶214.

<sup>873</sup> Elhauge Merits Report ¶¶ 207, 213.

<sup>874</sup> Elhauge Merits Report ¶¶ 216-17.

<sup>875</sup> Rubinfeld Report ¶386.

478. Professor Rubinfeld’s own unsupported theories about the natural link all apply equally to “contract” customers and “non-contract” customers. Professor Rubinfeld’s two “natural link” theories are that: (a) a customer who buys one vaccine from a given manufacturer is more likely to prefer other vaccines from that same manufacturer,<sup>876</sup> and (b) customers might prefer buying all vaccines from a single manufacturer in order to save transaction costs.<sup>877</sup> As I explain below in Part V.E.3., neither of these theories has any support in the evidence, and both are refuted by my Menveo share regression. But even if one assumed these unsupported theories were right, they would apply equally to all customers because they are unrelated to their Sanofi contract status; a customer’s contract status is not part of these theories in any way.

479. Here, the evidence indicates there is actually a *reverse* natural link – i.e., that customers who buy Sanofi Pediatric vaccines have inherently *weaker* average preferences for Menactra relative to Menveo – and the reasons why there would be a reverse natural link likewise apply equally to “contract” and “non-contract” customers. For example, customers who buy Sanofi Pediatric vaccines are less likely to be put off by the need for Menveo to be reconstituted because Sanofi Pediatric vaccines generally require reconstitution more often than the non-Sanofi alternatives.<sup>878</sup> That theory is unrelated to Sanofi contract status, and thus would apply equally to “contract” customers and “non-contract” customers.

480. The fact that Professor Rubinfeld does not even have a *theory* as to why any “natural link” (or reverse natural link) would exist for “non-contract” customers but not for “contract” customers also refutes Professor Rubinfeld’s claim that the “Buys\_Pediatric” coefficient cannot control any such natural link as it applies to “contract” customers.<sup>879</sup> As I noted in my opening merits report, the statistically significant +2.9% Buys\_Pediatric coefficient indicates that unrestrained [i.e., non-contract] customers who buy Sanofi Pediatrics have *higher* Menveo shares than unrestrained [i.e., non-contract] customers who do not buy Sanofi Pediatrics.”<sup>880</sup> Accordingly, non-contract customers who buy Sanofi Pediatric vaccines are significantly more likely to purchase Menveo, not Menactra.

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<sup>876</sup> Rubinfeld Report ¶399 (“Positive prior experience with Sanofi pediatrics, for example, would reasonably be expected to lead to greater purchases of Menactra relative to Menveo, irrespective of the challenged conduct.”).

<sup>877</sup> Rubinfeld Report ¶404.

<sup>878</sup> Elhauge Merits Report ¶216.

<sup>879</sup> Rubinfeld Report ¶¶387-388.

<sup>880</sup> Elhauge Merits Report ¶213.



Because non-contract customers do not face additional bundled penalties for buying Menveo, the difference in Menveo share between non-contract customers who buy Sanofi Pediatric vaccines and non-contract customers who do not buy Sanofi Pediatric vaccines is the best available estimate of the “natural link” between buying Sanofi Pediatric vaccines and customers’ inherent preference for Menactra relative to Menveo. Professor Rubinfeld never disputes that basic point. And because he does not even provide a *theoretical* reason why any “natural link” effect would differ between “contract” and “non-contract” customers, his criticism that the Buys\_Pediatric coefficient measures the natural link based on “non-contract” customers’ purchase decisions has no practical relevance.

481. Professor Rubinfeld’s Table 2, in which he replaces the “Buys\_Pediatric” variable in my Menveo share regression with a “No Contract & Buys Pediatric,” variable has no bearing on whether any “natural link” effect differs between “contract and non-contract” customers. In interpreting his Table 2 regression, Professor Rubinfeld incorrectly *assumes that there is no “reverse natural link”* for “contract customers,” even though even that Table 2 regression itself indicates there is a reverse natural link. I have reproduced Professor Rubinfeld’s Table 2 regression below. All of the variables are the same as in my Menveo share regression, except Professor Rubinfeld’s Table 2 uses a “No Contract & Buys Pediatric” variable instead of my original “Buys\_Pediatric” variable. He sets his “No Contract & Buys Pediatric” variable equal to 1 (on) only for customers who both are “non-contract” and buy Sanofi Pediatric vaccines. In contrast, my original “Buys\_Pediatric” variable was set equal to 1 (on) for all customers who buy Sanofi Pediatric vaccines, regardless of contract status.

Professor Rubinfeld Table 2			
Variable	Coefficient	Standard Error	p-value (zero null hypothesis)
No Contract & Buys Pediatric	2.9%	0.6%	< 0.001%
System No Pediatric	-9.3%	1.4%	< 0.001%
System & Buys Pediatric	-11.0%	0.6%	< 0.001%
PBG No Pediatric	1.1%	1.1%	34.0%
PBG & Buys Pediatric	-3.6%	0.6%	< 0.001%
Menactra Price	-0.6%	0.1%	< 0.001%
Choice	10.9%	0.4%	< 0.001%
Texas_Choice	9.2%	0.7%	< 0.001%

482. The coefficient for the “No Contract & Buys Pediatric” variable in Professor Rubinfeld’s Table 2 (+2.9%) is the exact same as the coefficient for the “Buys Pediatric” variable in my Menveo share regression. This reflects the fact that both coefficients are measures of how much weaker the average preference for Menactra is among non-contract customers who buy Sanofi pediatric vaccines relative to non-contract customers who do not buy Sanofi Pediatric vaccines. Thus, Professor Rubinfeld’s Table 2 indicates the exact same *reverse* natural link as my Menveo share regression does. And to repeat, Professor Rubinfeld: (a) has no theory as to why this reverse natural link would exist for “non-contract” customers but not “contract” customers; (b) never disputes that “non-contract” customer purchase decisions are the best available measure of the (reverse) natural link; and (c) never proposes any alternative methodology for measuring the size and direction of the (reverse) natural link.

483. Although switching the “Buys Pediatric” variable to the “No Contract & Buys Pediatric” variable in Professor Rubinfeld’s Table 2 did not change the coefficient measuring the (reverse) natural link, it *did* reduce the “System & Buys Pediatric” and “PBG and Buys Pediatric” coefficients by the exact size of the reverse natural link: 2.9%. For example, while the “PBG & Buys Pediatric” coefficient was -6.5% in my Menveo share regression, it is  $-6.5\% + 2.9\% = -3.6\%$  in Professor Rubinfeld’s Table 2 regression. This simply reflects the fact that, by replacing the Buys\_Pediatric variable (which had applied to both non-contract *and* contract customers) with the “No Contract Buys Pediatric Variable,” Professor

Rubinfeld made the PBG No Pediatric coefficient measure a *mix* of: (a) the restraining effect of the bundled penalties, *and* (b) the reverse natural link. Thus, in order to calculate the isolated effect of just the bundled penalties on PBG members in Professor Rubinfeld’s Table 2 regression, one must *not only* subtract the “PBG No Pediatric” coefficient from the “PBG & Buys Pediatric coefficient” (like one does with my original Menveo share regression results), *but also* subtract the “No Contract & Buys Pediatric” coefficient, which accounts for the reverse natural link. That means the isolated effect of the bundled Penalties on PBG members according to Professor Rubinfeld’s Table 2 regression is  $-3.6\% - 1.1\% - 2.9\% = -7.6$  percentage points, which is the exact same effect as in my Menveo share regression. In short, if one properly accounts for the reverse natural link when interpreting the coefficients, Professor Rubinfeld’s Table 2 regression indicates the exact same effects of the bundled penalties as my Menveo share regression.

484. Professor Rubinfeld’s assertions that his Table 2 regression indicates that the bundled penalties have smaller effects on Menveo shares than I found all hinge on his failure to account for the reverse natural link.<sup>881</sup> For example, Professor Rubinfeld asserts that the effect of the bundled penalties on PBG members according to his Table 2 regression equals the PBG & Buys Pediatric coefficient ( $-3.6\%$ ) minus the PBG No Pediatric coefficient ( $+1.1$ ), which is  $-4.7$  percentage points.<sup>882</sup> But because Professor Rubinfeld has failed to account for the reverse natural link, that  $-4.7$  percentage point figure does not measure the isolated effect of the bundled penalties, but instead measures the *sum* of that bundled penalty effect ( $-7.6\%$ ) *and* the reverse natural link effect that makes customers who buy Sanofi Pediatric vaccines inherently prefer Menveo more ( $+2.9\%$ ). Professor Rubinfeld makes this same mistake when attempting to calculate the isolated effect of the bundled penalties on 4P systems for his Table 2 regression,<sup>883</sup> and again makes this same mistake when he attempts to calculating the statistical significance of the isolated effects of the bundled penalties.<sup>884</sup>

485. **b. Professor Rubinfeld Attempts to Make Some Unclear Point About the PBG No Pediatric Coefficient.** The “PBG No Pediatric” coefficient in my Menveo share regression is  $+1.1\%$ , indicating that Menveo’s share is  $1.1\%$

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<sup>881</sup> Rubinfeld Report ¶¶392-393.

<sup>882</sup> Rubinfeld Report ¶392.

<sup>883</sup> Rubinfeld Report ¶393.

<sup>884</sup> Rubinfeld Report n. 482.

higher among PBG customers who do not buy Sanofi Pediatric vaccines than non-contract customers who do not buy Sanofi Pediatrics, after controlling for other factors such as Menactra price and state Choice status. I explained in my merits report that:

“This does not indicate that the PBG commitments on their own have no effect on PBG members. That variable captures both: (a) the effect of the PBG member commitment on Menveo share, which is negative, and (b) the effect of PBG members’ inherently stronger Menveo preference on Menveo share, which is positive. Thus, the fact that this coefficient is near zero indicates only that these two countervailing effects are roughly the same in magnitude as each other, and thus mostly cancel each other out”<sup>885</sup>

486. Professor Rubinfeld says my statement “misinterprets” this coefficient, but he does not ever claim that I am wrong that the “PBG No Pediatric coefficient” captures two countervailing effects.<sup>886</sup> Professor Rubinfeld suggests that he is criticizing me for rejecting the interpretation that this indicates that customers on PBG contracts are unaffected “by the challenged conduct.”<sup>887</sup> But Professor Rubinfeld provides no reasoning to rebut my point, which was that this coefficient does not indicate the effect of “PBG commitments on their own.” Nor does he explain why this coefficient, which is about customers who do *not* buy Sanofi pediatrics, would show a lack of restraining effect from “the challenged conduct.” The vast majority of PBG members buy Sanofi pediatrics,<sup>888</sup> and I have always classified PBG members who do *not* buy Sanofi Pediatrics as “unrestrained” because they do not face bundled penalties on Sanofi’s Pediatric vaccines.

487. **c. I Correctly Used Pre-Entry Menactra Prices to Avoid Endogenous Sample Selection Bias.** My Menveo share regression controls for differences between customers’ Menactra prices with a variable, “Menactra\_Price,” that equals each customer’s Menactra price *before* Menveo entry.<sup>889</sup> The coefficient on the Menactra\_Price variable is very close to zero and

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<sup>885</sup> Elhauge Merits Report ¶210.

<sup>886</sup> Rubinfeld Report ¶394.

<sup>887</sup> Rubinfeld Report ¶394.

<sup>888</sup> Professor Rubinfeld’s own Table 9 indicates that 88-90% of PBG members buy Sanofi Pediatrics.

<sup>889</sup> Table 11 of my opening merits report uses the each customer’s average Menactra price in the period before Menveo entry. Professor Rubinfeld suggests that this method leads to

is actually slightly *negative*, meaning that charging higher Menactra prices created no meaningful reduction in Menactra share and indeed was associated with a small increase in Menactra share.<sup>890</sup>

488. Professor Rubinfeld argues that I should have instead defined the Menactra Price control variable to be each customer's *post-entry* Menactra price.<sup>891</sup> That is wrong because, as I explained in my opening merits report, using *post-entry* Menactra price data would necessarily cause the bias of endogenous sample selection.<sup>892</sup> Endogenous sample selection means selecting a sample based on the dependent variable, which here is the Menveo share.<sup>893</sup> Because there is by definition no post-entry Menactra price data on customers who switched 100% to Menveo, using post-entry Menactra prices would require the regression to selectively drop customers with 100% Menveo shares.<sup>894</sup> Professor Rubinfeld does not dispute this. Nor does he dispute that it would create endogenous sample selection bias. He is thus advocating using a method that would indisputably create statistical bias.

489. Further, Professor Rubinfeld ignores the fact that each customer's pre-entry Menactra price is a good proxy for their post-entry Menactra prices. There is a strong positive correlation (positive 59-61%) between each customer's pre-entry Menactra price and their post-entry Menactra price.<sup>895</sup> This means that customers with relatively higher pre-entry Menactra prices also tend to have higher post-entry Menactra prices relative to other customers. This strong positive correlation means that pre-entry Menactra prices serve as a good proxy for post-entry Menactra

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different results than using each customer's last Menactra price before Menveo entry. Rubinfeld Report n.471. Contrary to his suggestion, there is no practically significant difference in the results if one using each customer's last Menactra price before Menveo entry. *See* "MRebut3014 MSR (last price).csv" (indicates reverse natural link of +2.9 percentage points, isolated effect of bundled penalties on systems of -4.3 percentage points, isolated effect of bundled penalties on PBG members of -7.1 percentage points, and a Menactra price coefficient of -0.1 percentage points).

<sup>890</sup> Elhauge Merits Report ¶211.

<sup>891</sup> Rubinfeld Report ¶395.

<sup>892</sup> Elhauge Merits Report ¶203.

<sup>893</sup> *Id.* n.307.

<sup>894</sup> Elhauge Merits Report n. 307.

<sup>895</sup> "MRebut06 pre entry vs post-entry price correlations.txt". The correlation is 61% for customers' average pre-entry Menactra prices and 59% for customers' most recent pre-entry Menactra price.



prices, without introducing the endogenous sample selection bias that would occur if one actually used post-entry Menactra prices.

490. **d. Including a Menveo Price Variable Would Necessarily Result in Endogenous Sample Selection Bias.** Professor Rubinfeld also implicitly criticizes me for not including a “Menveo Price” variable in my Menveo share regression.<sup>896</sup> However, I have previously explained that “using Novartis price data to incorporate a Menveo price variable would result in endogenous sample selection bias because it would mean dropping all customers who did not buy any Menveo.”<sup>897</sup> Because there is by definition no Menveo price data on customers who did not buy Menveo, using Menveo prices would require the regression to selectively drop customers with 0% Menveo shares. Because the Menveo share is the dependent variable, this would result in endogenous sample selection bias. Professor Rubinfeld does not dispute this point, so again is oddly criticizing me for failing to use a method that would create undisputed statistical bias.

*2. Professor Rubinfeld Acknowledges that the Size of the R-squared Does Not Indicate the Presence or Absence of Omitted Variable Bias*

491. Professor Rubinfeld explicitly acknowledges that the size of a regression’s R-squared does not indicate whether it suffers from omitted variable bias.<sup>898</sup> Indeed, adding an independent variable that suffers from omitted variable bias will necessarily *increase* the R-squared.<sup>899</sup> This is one of many reasons why the economic literature states that the R-squared of a regression does not bear on the accuracy of its coefficient estimates.<sup>900</sup>

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<sup>896</sup> Rubinfeld Report ¶395 (“Because Professor Elhauge fails to account for relative contemporaneous price differences between Menactra and Menveo, he has not shown that Novartis could not gain a substantial number of customers by simply lowering its price by a small amount.”).

<sup>897</sup> Elhauge Merits Report n. 307.

<sup>898</sup> Rubinfeld Report ¶396 (“a low R-squared by itself does not prove that the coefficient on an explanatory variable is providing a biased measure of the average effect of that variable on the dependent variable.”).

<sup>899</sup> A.H. STUDENMUND, USING ECONOMETRICS, A PRACTICAL GUIDE 51 (4<sup>th</sup> ed. 2001) (“A major problem with  $R^2$  is that adding another independent variable to a particular equation can never decrease  $R^2$ .”); *id.* at 51, n.6 (“The coefficient of the newly added variable being zero is the only circumstance in which  $R^2$  will stay the same when a variable is added. Otherwise,  $R^2$  will always increase when a variable is added to an equation.”).

<sup>900</sup> DAMODAR GUJARATI, BASIC ECONOMETRICS 222-223 (2008) (“a high  $R^2$  is not evidence in favor of the model and a low  $R^2$  is not evidence against it. In fact the most important

492. Indeed, Professor Rubinfeld's own prior writings state that one should expect  $R^2$  to be low in regressions, like the Menveo share regression, that are "cross-sectional studies in which differences in individual behavior are explained."<sup>901</sup> He has relatedly explained that "in cross-section studies . . . a lower  $R^2$  may occur even if the model is a satisfactory one because of the large variation across individual units of observation."<sup>902</sup>

493. As I explain below, Professor Rubinfeld's claims that my Menveo share regression results are caused by omitted variables (such as customer preference) not only lack support in the evidence, but also are affirmatively contradicted by the evidence in this case.

### *3. My Menveo Share Regression Does Control for Customer Preferences*

494. Professor Rubinfeld asserts incorrectly that my Menveo share regression fails to control for customer preference.<sup>903</sup> The "Buys\_Pediatric" variable in my Menveo share regression explicitly controls for the only customer-preference theory Professor Rubinfeld has proposed: that customers who buy

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thing about  $R^2$  is that it is not important in the [Classical Regression] model."); ABA SECTION OF ANTITRUST LAW, ECONOMETRICS 409 (1<sup>st</sup> ed. 2005) ("What level of  $R^2$ , if any, should lead to a conclusion that the model is satisfactory? Unfortunately, there is no clear-cut answer to this question, since the magnitude of  $R^2$  depends on the characteristics of the data being studied, and in particular, whether the data vary over time or over individuals. Typically, an  $R^2$  is low in cross-section studies in which differences in individual behavior are explained. It is likely that these individual differences are caused by many factors that cannot be measured. As a result, the expert cannot hope to explain most of the variation."); KENNEDY, A GUIDE TO ECONOMETRICS 380 (6<sup>th</sup> ed. 2008) ("In general, do not pay much heed to  $R^2$ .").

<sup>901</sup> Daniel Professor Rubinfeld, *Reference Guide on Multiple Regression*, IN REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, 417, 457 (3d ed. 2011), available at [http://www.fjc.gov/public/pdf.nsf/lookup/11.mult\\_reg.pdf/\\$File/11.mult\\_reg.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/11.mult_reg.pdf/$File/11.mult_reg.pdf) ("What level of  $R^2$ , if any, should lead to a conclusion that the model is satisfactory? Unfortunately, there is no clear-cut answer to this question, since the magnitude of  $R^2$  depends on the characteristics of the data series being studied and, in particular, whether the data vary over time or over individuals. Typically, an  $R^2$  is low in cross-sectional studies in which differences in individual behavior are explained. It is likely that these individual differences are caused by many factors that cannot be measured. As a result, the expert cannot hope to explain most of the variation."). Cross-sectional studies analyze data collected across a population in the same time period.

<sup>902</sup> PINDYCK & PROFESSOR RUBINFELD, ECONOMETRIC MODELS AND ECONOMIC FORECASTS 73-74 (4<sup>th</sup> ed. 1998).

<sup>903</sup> Rubinfeld Report ¶399.

Sanofi Pediatric vaccines are more likely to inherently prefer Menactra relative to Menveo than customers who do not buy Sanofi Pediatric vaccines.<sup>904</sup> I call this Professor Rubinfeld’s “natural link” theory, because it posits that there is a “natural link” (not caused by Sanofi’s contracts) that makes customers who buy Sanofi Pediatric vaccines more likely to prefer Menactra relative to Menveo. Here, the Buys\_Pediatric coefficient not only controls for this potential “natural link theory,” but actually *affirmatively refutes it*. The Buys\_Pediatric coefficient is *positive* 2.9%, indicating that when customers do not face additional bundled penalties for buying Menveo, those who buy Sanofi Pediatric vaccines actually buy *larger* shares of Menveo than those who do not buy Sanofi Pediatric vaccines – the exact opposite of Professor Rubinfeld’s “natural link” theory. Further, I showed in my opening merits report that “natural link” theory is *also* refuted by the lack of documentary evidence supporting the theory *and* by functional analysis indicating that customers who buy Sanofi Pediatrics should actually prefer Menactra less.<sup>905</sup>

495. The following sections show that: (a) Professor Rubinfeld is wrong that the documentary evidence supports his “natural link” theory, (b) Professor Rubinfeld is wrong that functional analysis supports his “natural link” theory, and (c) Professor Rubinfeld is wrong that the Menveo share regression does *not* refute his “natural link” theory.

496. **a. Internal Documents Do Not Support Professor Rubinfeld’s “Natural Link” Theory.** I explained in my opening merits report that Sanofi documents did not indicate that customers who buy Sanofi Pediatric vaccines (which immunize against DTaP, Hib, and Polio) inherently prefer Menactra (which immunizes against MCV4). I further showed that Sanofi internal documents indicated that Sanofi thought the reason Sanofi Pediatric buyers bought larger shares of Menactra was *the Bundle*, as opposed to a “natural link.”<sup>906</sup> This indicates that Sanofi’s employees do not believe the “natural link” theory that Sanofi’s counsel and experts propose.

497. Although Professor Rubinfeld asserts that there is “extensive evidence in the record supporting a correlation between preference for Menactra and preference for other Sanofi Pediatric products,”<sup>907</sup> none of the evidence he cites

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<sup>904</sup> Rubinfeld Report ¶399.

<sup>905</sup> Elhauge Merits Report ¶¶212-217.

<sup>906</sup> Elhauge Merits Report ¶214.

<sup>907</sup> Rubinfeld Report ¶403.

actually supports his “natural link” theory. The entirety of the “extensive evidence” he cites is: (i) two contemporaneous internal documents, neither of which actually supports the “natural link” theory; (ii) the fact that doctors prefer to standardize on one manufacturer for any *single* vaccine, which does not support his claim that they prefer to standardize on one manufacturer across *multiple* vaccines; and (iii) a handful of self-serving declarations and depositions by Sanofi employees that, even if assumed credible, still do not support Professor Rubinfeld’s natural link theory.<sup>908</sup> If this is the most “extensive” evidence that Professor Rubinfeld can find in support of his “natural link” theory, it is fair to say that there is actually no evidence in support of the “natural link” theory.

498. (i) The “Natural Link” Theory Is Not Supported by Contemporaneous Documents, Which State Only That Sanofi’s Contractual Bundling Forces Customers Standardize on Particular Manufacturers to Avoid Artificial Bundled Penalties. Professor Rubinfeld’s “natural link” theory is that customers who buy Sanofi products *naturally* have an inherently stronger preference for Menactra (relative to Menveo) than other customers, *independent of any contractual penalties*. Thus, evidence that Sanofi’s bundled contract penalties forced customers to standardize on a single manufacturer does *not* support Professor Rubinfeld’s theory that customers who buy Sanofi Pediatric vaccines just happen to prefer Sanofi’s MCV4 vaccine, regardless of their contract. Yet this is the only type of evidence Professor Rubinfeld cites in support of his “natural link” theory.

499. Professor Rubinfeld cites only two contemporaneous documents in support of his claim. First, Professor Rubinfeld quotes one line from a Sanofi presentation that states: “Most customers are picking one shop (GSK or Sanofi Pasteur) and then filling in the remaining products.”<sup>909</sup> However, he omits the fact that the *very next line* of this presentation explicitly attributes this to *Sanofi’s contracts*, not customers’ “natural preferences.” It states that: “Loyalty based contracts by SP, GSK’s escalating discounts based on the number of products, Hib allocations, sole source (current or legacy) on Menactra and Adacel have all contributed to this.”<sup>910</sup>

500. The only other contemporaneous document Professor Rubinfeld cites in support of his “natural link” theory is an internal GSK document that on one

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<sup>908</sup> Rubinfeld Report ¶¶ 403-06.

<sup>909</sup> Rubinfeld Report ¶403 (citing SP 00496642 at 45).

<sup>910</sup> SP 00496642 at SP 00496645.

slide includes the sentence fragment: “Prefer to purchase most vaccines from one manufacturer.”<sup>911</sup> That statement does not support Professor Rubinfeld’s “natural link” theory because it does not state *why* GSK believes customers prefer that. Numerous internal contemporaneous documents show that *Sanofi’s bundled contracts* make customers “prefer” to buy most of their vaccines from Sanofi in order to avoid bundled penalties.<sup>912</sup> Given that Professor Rubinfeld himself stresses that GSK bundles its own vaccines, this GSK document is most likely referring to the fact that the manufacturers’ *contracts* make customers standardize on particular manufacturer to avoid penalties. That does not support Professor Rubinfeld’s claim that that this one sentence fragment constitutes “extensive evidence” that there is a *natural* link between buying one vaccine from a manufacturer and inherently preferring that manufacturer’s other vaccines for reasons besides the manufacturers’ bundled contracts.

501. (ii) Evidence That Doctors Prefer to Standardize On One Manufacturer for a Single Vaccine Does Not Show They Do So Across Multiple Vaccines. In my opening merits report, I explained that restraining a customer’s private choice of MCV4 vaccine also often restrained their choice of which MCV4 vaccine to use for VFC-eligible patients because

“medical providers prefer to use the same *vaccine* for both their VFC and non-VFC patients for many reasons: (1) it minimizes any perception of discrimination or a “two-tiered system” between the VFC patients (who tend to be less wealthy) and the non-VFC patients, (2) it reduces paperwork, and (3) it minimizes errors.”<sup>913</sup>

This point – that doctors prefer to use one manufacturer for any *single* vaccine that they give to their private and VFC patients – does not provide any support for Professor Rubinfeld’s claim that doctors prefer to use one manufacturer for entirely *different* vaccines.<sup>914</sup> Using Menactra for private patients and Menveo for VFC patients would treat different patients differently and require providers to use two different MCV4 vaccine methods for different patients, which increases the risk of errors. In contrast, using Menveo for all patients getting MCV4 vaccines and Sanofi for all patients getting pediatric vaccines would treat all patients the same (thus creating no discrimination) and would not require providers to use multiple

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<sup>911</sup> Rubinfeld Report n. 494, citing [REDACTED]

<sup>912</sup> Elhauge Merits Report ¶191, citing SP 00282905 at SP 00282906; SP 01953358; [REDACTED]

<sup>913</sup> Elhauge Merits Report ¶226.

<sup>914</sup> Rubinfeld Report ¶405.



methods for delivering each vaccine. There is thus no economic connection between wanting to standardize within one product and wanting to choose one manufacturer across different products.

502. (iii) Even Sanofi’s Self-Serving Declarations and Depositions Given By Its Employees Do Not Support Professor Rubinfeld’s “Natural Link” Theory. Having failed to find *any* contemporaneous documents that actually support his “natural link theory,” Professor Rubinfeld’s last recourse is deposition testimony and declarations created in this litigation by Sanofi employees. These are all inherently less credible than the contemporaneous business documents I relied upon because Sanofi employees have an incentive to give testimony that benefits their employer and/or that indicates they themselves have not engaged in anticompetitive conduct.

503. For example, Professor Rubinfeld cites the deposition of a Sanofi employee named Eric Grau, which was taken after I presented my Menveo share regression.<sup>915</sup> Mr. Grau’s testimony is appears to track the *legal* arguments Sanofi counsel has made and contradict the pre-litigation statements he himself made in contemporaneous internal Sanofi documents. On the page Professor Rubinfeld quotes, Mr. Grau is being asked about a document titled “Pricing & Contracting Strategy: Maintaining Our Dominant Market Share,” which he wrote in 2009 (before this litigation was filed).<sup>916</sup> In this pre-litigation document, Mr. Grau explains that Sanofi’s goal is to “increase the customer costs of switching [to rivals] by increasing the discount dollars associated with maintain a loyal product selection,” and notes that “this can be accomplished by increasing list and contract discount – not necessarily a net price change.”<sup>917</sup> In this pre-litigation document, Mr. Grau also explains that Sanofi’s contracts “bifurcate” markets and that this bifurcation is expected to keep prices artificially high – exactly what my market division theory predicts.<sup>918</sup> Nowhere in this pre-litigation document does Mr. Grau use the word “procompetitive” (a technical term specific to antitrust law and economics), and nowhere in this document does he mention anything about Sanofi’s contracts being designed to provide lower prices to customers that were cheaper for Sanofi to serve. Indeed, in Sanofi’s entire production database, which

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<sup>915</sup> Rubinfeld Report n. 494, citing August 12, 2014 deposition of Eric Grau at 155. I first submitted a Menveo share regression in my March 17, 2014 opening class report.

<sup>916</sup> Grau Deposition at 154-155, when questioned about SP 00496642.

<sup>917</sup> SP 00496642 at SP 00496647.

<sup>918</sup> Elhauge Merits Report ¶162.

includes over 34,000 internal documents with Mr. Grau's name, there is not a single internal Sanofi document that uses the term "procompetitive." But in this litigation, Sanofi has argued that Sanofi's contracts procompetitively achieve cost savings,<sup>919</sup> and in Mr. Grau's *deposition* he instead asserted that Sanofi actually was seeking "to have an efficient *pro-competitive* marketplace where we offered *low prices to customers that have a low cost to serve for us.*"<sup>920</sup> If such procompetitive efficiencies were actually what drove the Bundle, then one would expect to see them in contemporaneous business documents because they would be necessary to assess and quantify in order to decide what price reduction was merited.

504. In any event, the Sanofi depositions and declarations Professor Rubinfeld cites do not support his "natural link" theory *even if one assumes that the Sanofi employees were 100% accurate*. Professor Rubinfeld's citation to Mr. Grau's statement that customers "tend to make a brand decision and they don't switch,"<sup>921</sup> does not support Professor Rubinfeld's "natural link" theory because it does not explain *why* customers do not switch. If Mr. Grau meant that customers do not switch between manufacturers because Sanofi has used its *contracts* to increase the customer costs of switching (as Mr. Grau recommended Sanofi do<sup>922</sup>), that does not support the "natural link" theory, but instead mirrors his apparent pre-litigation view, and bolsters my own findings about the effects of the Bundle. There is no indication in Mr. Grau's deposition that he is instead stating that customers have inherent preferences for particular manufacturers independent of the bundled contracts.

505. Professor Rubinfeld also cites three depositions of Sanofi employees, and one declaration of a Sanofi employee, for the proposition that because of "the experience customers may have had with Sanofi products, including Sanofi pediatrics, customers may be attracted to Sanofi's safety record."<sup>923</sup> But *none* of these Sanofi employees actually state that customers' experience with Sanofi Pediatric vaccines makes customers believe that Menactra will be safer. Instead,

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<sup>919</sup> See, e.g., Sanofi's Objections and Responses to Plaintiff's 2<sup>nd</sup> Set of Interrogatories at 18-23.

<sup>920</sup> Grau Deposition at 154-155, when questioned about SP 00496642.

<sup>921</sup> Rubinfeld Report n. 494, citing Grau Deposition at 155.

<sup>922</sup> SP 00496642 at SP 00496647.

<sup>923</sup> Rubinfeld Report ¶405, citing Declaration of Brent MacGregor, December 30, 2011 ¶¶8-10; Averbeck Deposition, pp. 95-96; Leber Deposition, p. 325; Hoover Deposition, pp. 184-185. All of these are current or past Sanofi employees.

they state that doctors' extensive past experience with *Menactra in particular* will make doctors believe in the safety of *Menactra* (not Sanofi in general).<sup>924</sup> Indeed, these statements by Sanofi employees actually refute the "natural link" because they show that Sanofi was not trying to sell customers on its qualities as a manufacturer, but instead was selling customers on the particular characteristics of *their MCV4 vaccine*. None of these Sanofi employees stated that they believed customers would think *Menactra* (Sanofi's MCV4 vaccine) was safe just because they also purchased Sanofi Pediatric vaccines.

506. In sum, Professor Rubinfeld has not cited *any* evidence in the record (neither contemporaneous documents nor depositions nor declarations) supporting his "natural link" theory. This is consistent with my conclusion that there is no documentary evidence supporting Sanofi's "natural link" theory.<sup>925</sup> The lack of *any* evidence supporting Professor Rubinfeld's "natural link" theory casts serious doubt on Professor Rubinfeld's statistical analysis purporting to show a "natural link." In sections 4-5 below, I show that, in order for Professor Rubinfeld to distort the Menveo share regression enough to make it support his desired conclusion, Professor Rubinfeld must *not only* include a spurious independent variable (his Buys\_GSK/Merck variable), *but also* reduce the accuracy of the regression by halving the sample size for no theoretically justifiable reason.

507. **b. Functional Analysis of Reverse Natural Link.** In my opening merits report, I explained that the evidence indicates there are at least two functional reasons why one would expect a *reverse* "natural link."<sup>926</sup> Professor Rubinfeld claims to have run regressions that contradict these functional reasons

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<sup>924</sup> Declaration of Brent MacGregor, December 30, 2011 ¶¶8-10 ("Physicians who have used a vaccine successfully and gained confidence in the product are often reluctant to switch to an equivalent vaccine that is subsequently licensed by the FDA unless the new vaccine provides a compelling advantage over the existing vaccine."); Averbeck Deposition, pp. 95-96 ("A: Because Menactra has a proven safety record."); Leber Deposition, p. 325 ("Q: What was the Menactra message that you were conveying to contract owners and that you understood the message to be at the time of Menveo's entry? A: Proven efficiency in controlling disease, millions of doses given in the marketplace, single-unit dose presentation, you know, no need to have to mix or reconstitute, yeah."); Hoover Deposition, pp. 184-185 ("A: We're going to be out there selling things like you don't have to reconstitute this product . . . We're going to talk about the fact of how many millions of doses have you used. This is a product coming five years after the launch of our – after Menactra. So you've used millions and millions of doses, it's safe, it's effective.").

<sup>925</sup> Elhauge Merits Report ¶214.

<sup>926</sup> Elhauge Merits Report ¶¶215-217,

for the reverse natural link my Menveo share regression found.<sup>927</sup> I explain below that Professor Rubinfeld is wrong, but it should be noted that, even if one accepted Professor Rubinfeld's claims that I had not identified the particular theories explaining *why* there is a *reverse* natural link, that would not refute the regression evidence showing that there *is* a reverse natural link. Indeed, these regressions, which Professor Rubinfeld claims contradict my functional explanations about *why* there is a reverse natural link, actually still indicate that there *is* a reverse natural link.

508. (i) Reconstitution. As I explained in my opening merits report: “The only Pediatric vaccines that require reconstitution are Sanofi’s Pentacel and ActHIB and GSK’s Hiberix, the last of which had a trivial share of the HIB vaccine market. . . [The data shows that] in each pediatric vaccine market, Sanofi pediatric vaccines were more likely to require reconstitution [than the non-Sanofi alternatives]. Accordingly, physicians who preferred Sanofi pediatric vaccines were likely to be more amenable to reconstitution and thus *more* likely to choose Menveo, which likewise requires reconstitution. This functional factor thus contradicts Sanofi’s “natural link” theory”<sup>928</sup>

509. Professor Rubinfeld does not dispute that Sanofi Pediatric vaccines require reconstitution more often than the non-Sanofi alternative, but he asserts that buying Pentacel (Sanofi’s most popular Pediatric vaccine, which requires reconstitution) does *not* “necessarily demonstrate a strong willingness to use reconstituted vaccines” because Pentacel is a combination vaccine (it inoculates against DTaP, Polio, and Hib) and therefore buying Pentacel may merely indicate a customers’ preference for combination vaccines.<sup>929</sup> Professor Rubinfeld’s argument fails because customers who are strongly averse to reconstitution do have an alternative, non-Sanofi, non-reconstitution option if they want to use a combination vaccine in order to reduce the total number of vaccine administrations for each patient. For example, GSK’s Pediarix is a combination vaccine that inoculates against DTaP, Polio, and Hepatitis B, and does not require reconstitution.<sup>930</sup> ACIP also recommends routine administration of Hepatitis B

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<sup>927</sup> Rubinfeld Report ¶¶413-421.

<sup>928</sup> Elhauge Merits Report ¶216.

<sup>929</sup> Rubinfeld Report ¶413.

<sup>930</sup> Elhauge Merits Report n. 326.

vaccines,<sup>931</sup> so a provider following the ACIP schedule must vaccinate children with at least DTaP, Hib, Polio, and Hepatitis B. If a provider wants to cover all four of those vaccine types with only two needle sticks, it can do so either: (a) *with* reconstitution, using Sanofi's Pentacel (DTaP + Polio + Hib) and Merck's Recombivax (Hep B);<sup>932</sup> or (b) *without* reconstitution, using GSK's Pediarix (DTaP + Polio + Hep B) and Merck's Pedvax Hib vaccine.<sup>933</sup> Because providers *do* have a choice between *Sanofi's* combination vaccine (Pentacel) and non-Sanofi combination vaccines (like GSK's Pediarix), a customer's choice to use Sanofi Pediatric vaccines, which are more likely to require reconstitution, *does* indicate that the customer is less averse to reconstitution.

510. Professor Rubinfeld also runs a regression that he claims shows that the reverse natural link is *not* driven by customers' preferences for reconstitution.<sup>934</sup> But his regression does not do so. The table below reproduces the portion of Professor Rubinfeld Table 4 that presents the results of the regression he ran without the spurious Buys\_GSK/Merck variable. It shows that, among non-contract customers, those who buy Sanofi Pediatric vaccines that require reconstitution have a 2.2% *higher* Menveo share than customers who do not buy Sanofi Pediatric vaccines. That is roughly the same as the 2.9% reverse natural link my Menveo share regression found. Professor Rubinfeld claims that reconstitution preferences cannot be the reason for the reverse natural link based on the premise that, in his regression, the reverse natural link is even *higher* for customers who buy Sanofi Pediatrics that do *not* require reconstitution.<sup>935</sup> But showing that reverse natural link is *even larger* for another group of customers does not refute my analysis showing that there is a reverse natural link for customers who buy Sanofi Pediatric vaccines that require reconstitution. Because this group of customers is buying a different set of Sanofi Pediatrics, their reverse natural link may be higher for reasons other than reconstitution. But that does not rebut the fact that buying Sanofi pediatrics that do require reconstitution creates a reverse natural link. To draw an analogy, evidence that drinking alcohol increased car crashes would not be disproven by evidence that snorting cocaine increased car crashes even more.

<sup>931</sup> Professor Rubinfeld Exhibit 1.

<sup>932</sup> Merck's Recombivax does not require reconstitution.  
[http://www.merck.ca/assets/en/pdf/products/RECOMBIVAX\\_HB-PM\\_E.pdf](http://www.merck.ca/assets/en/pdf/products/RECOMBIVAX_HB-PM_E.pdf).

<sup>933</sup> Pediarix does not require reconstitution. Elhauge Merits Report n. 326. PedVax HIB does not require reconstitution either. Elhauge Merits Report n. 329.

<sup>934</sup> Rubinfeld Report ¶¶414-415.

<sup>935</sup> Rubinfeld Report ¶¶414-415.



<b>Rubinfeld Report Table 4</b> <b>Reverse Natural Link Measured Using Non-Contract Customer Data</b> <b>(Results without Spurious Buys GSK/Merck Variable)</b>		
<b>Variable</b>	<b>Effect</b>	<b>p-value (zero null hypothesis)</b>
Buys Any Sanofi Pediatrics That Require Reconstitution (Pentacel, ActHib)	+2.2%	<0.1%
Buys Only Sanofi Pediatrics That Do <i>not</i> Require Reconstitution (Daptacel, Tripedia, IPOL)	+5.6%	< 0.1%

511. The other regression that Professor Rubinfeld presents in Table 4 of his report is unreliable because it includes the spurious “Buys\_GSK/Merck variable.” I explain in detail below in section 4 that there is no theoretical justification for including the Buys\_GSK/Merck variable in these Menveo share regressions. I further explain in section 4 that, in order for Professor Rubinfeld to distort the Menveo share regression enough to purportedly undermine my findings, he must *not only* include the spurious Buys\_GSK/Merck variable, *but also* further reduce the accuracy of the regression by halving the sample size for no theoretically justifiable reason.

512. (ii) ACIP Booster Recommendation. In my opening merits report, I explained that customers who bought Sanofi Pediatric vaccines were more likely to have younger patients, and therefore were less likely to prefer Menactra based on the ACIP’s temporary recommendation to use Menactra for the booster MCV4 dose (typically administered to children over the age 16 or older).<sup>936</sup> Professor Rubinfeld does not dispute that one should expect this factor to cause a reverse natural link.<sup>937</sup>

513. However, Professor Rubinfeld argues incorrectly that regression analysis indicates that the reverse natural link is not due to the temporary ACIP

<sup>936</sup> Elhauge Merits Report ¶217.

<sup>937</sup> Rubinfeld Report ¶¶416-421. Professor Rubinfeld argues that a regression he runs indicates that the reverse natural link is not due to the temporary ACIP booster recommendation, but he nowhere disputes that the temporary ACIP booster recommendation should in theory cause a reverse natural link.

booster recommendation.<sup>938</sup> In reality, his Table 5 regression is consistent with the temporary ACIP booster recommendation increasing the size of the reverse natural link.

514. On January 28, 2011, ACIP promulgated a recommendation that medical providers use the same MCV4 vaccine for the booster dose (generally administered at age 16-18) as was administered for the primary dose (generally administered at age 11).<sup>939</sup> ACIP then retracted the recommendation that doctors use the same vaccine for the booster and primary dose on August 5, 2011.<sup>940</sup> One would therefore expect this temporary recommendation to make doctors with predominantly older patients (in the booster dose age range) to prefer Menactra more than customers with predominantly young patients (in the primary dose range) from January 28, 2011 until August 5, 2011.<sup>941</sup> Sanofi's Pediatric vaccines are generally administered to younger patients (age 6 or below), so doctors who do *not* use Sanofi Pediatric vaccines are more likely to have older patients, and thus are more likely to administer booster MCV4 booster doses and prefer Menactra for those booster doses because of the temporary ACIP recommendation. This should cause a reverse natural link – i.e., it should make customers who buy Sanofi Pediatrics prefer Menactra on average *less* than customers who do not buy Sanofi Pediatric vaccines. Because this ACIP recommendation was promulgated at the end of January, one should therefore expect the reverse natural link to be higher from February 2011 to June 2011 (the portion of my Menveo share regression period after the ACIP recommendation).

515. The coefficient that measures the size of the reverse natural link in the Menveo share regression is the coefficient on the “Buys Pediatric” variable, which is mathematically equivalent to the coefficient on the “No Contract & Buys Pediatric” variable in Professor Rubinfeld's Table 5 regression.<sup>942</sup> This coefficient indicates how much higher Menveo's share was among customers who bought Sanofi Pediatric vaccines, among customers who did not face additional bundled

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<sup>938</sup> Rubinfeld Report ¶¶417-421.

<sup>939</sup> Elhauge Merits Report, n. 330.

<sup>940</sup> Elhauge Merits Report ¶217.

<sup>941</sup> Elhauge Merits Report ¶217.

<sup>942</sup> As discussed above, although the Buys\_Pediatric coefficient is the same as the “No Contract & Buys Pediatric coefficient, one must account for the change in variable when interpreting the other coefficients.

penalties for buying Menveo (i.e., “non-contract” customers).<sup>943</sup> Therefore, if my theory about the ACIP booster recommendation is correct, then one should expect the reverse natural link, as measured by the “Buys\_Pediatric” or “No Contract & Buys Pediatric” coefficient, to be *larger* (more positive) after the ACIP recommendation was promulgated (Feb 2011 – Jun 2011) than before (Jul 2010 – Jan 2011). That is what Professor Rubinfeld’s Table 5 regression (reproduced below) finds. The “No Contract & Buys Pediatric” coefficient is more positive (indicating a larger reverse natural link) in the post-recommendation period (+3.0%) than in the pre-recommendation period (+2.4).<sup>944</sup> Because the difference is relatively small, it is not statistically significant, meaning one can neither accept nor reject the null hypothesis that the ACIP recommendation did not increase the size of the reverse natural link.<sup>945</sup> This is likely because doctors do not always immediately implement ACIP recommendations,<sup>946</sup> and this regression analyzes the effect of the booster recommendation in only the first five months after the ACIP recommendation. Thus, Professor Rubinfeld’s Table 5 regression does not refute my analysis indicating that the ACIP booster recommendation contributed to the reverse natural link.

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<sup>943</sup> Professor Rubinfeld has never argued that any other variable in the Menveo share regression measures the reverse natural link.

<sup>944</sup> It makes sense that the reverse natural link was still large and statistically significant before the ACIP recommendation because other factors, such as reconstitution preferences, also drive the reverse natural link.

<sup>945</sup> “MRebut3020 Rubin Table 5 Coefficient Equivalence.txt”. If there was actually no difference in the size of the reverse natural link before and after the ACIP recommendation, there would be a 49% chance of obtaining coefficient estimates of the reverse natural link being this different from each other.

<sup>946</sup> SP 00076018 at SP 00076020 (internal Sanofi document predicting effects of ACIP’s booster recommendation. It states “Market research has shown that there is a high level of awareness of new recommendation, but low implementation.”)

Rubinfeld Report Table 5		
Variable	Pre-ACIP Recommendation Coefficient (Jul 2010-Jan 2011)	Post-ACIP Recommendation Coefficient (Feb 2010 – Jul 2011)
No Contract & Buys Pediatric	+2.4%	+3.0%
System No Pediatric	-7.9%	-9.1%
System & Buys Pediatric	-8.9%	-14.3%
PBG No Pediatric	+0.1%	+2.2%
PBG & Buys Pediatric	-3.6%	-6.0%
Menactra Price Choice	-0.6%	-0.5%
	+8.0%	+15.1%
Texas Choice	+7.0%	+12.7%

516. Professor Rubinfeld erroneously claims that his Table 5 regression shows that the ACIP recommendation did not increase the size of the reverse natural link. His analysis depends on his assertion that:

“to the extent that Menveo purchases by contract buyers of Sanofi pediatrics are less sensitive to the ACIP recommendation in January 2011 relative to no-pediatric contract buyers, one would expect the magnitude of the difference in Menveo shares between buyers of pediatrics and non-pediatric buyers to be reduced after the promulgation of the ACIP recommendation.”<sup>947</sup>

However, Professor Rubinfeld provides no reasoning as to why one would expect this to be so. The “difference in Menveo shares between [contract] buyers of pediatrics and [contract] non-pediatric buyers” *cannot* be used to measure the size of the reverse natural link because contract customers who buy Sanofi Pediatrics face bundled penalties for buying Menveo that contract buyers do not face. Thus, the difference reflects the effect of the bundled penalties, and one would expect that difference to decline over time only if one thought that *the Bundle became less restraining over time*.

517. When interpreted correctly, the coefficients in Professor Rubinfeld’s Table 5 regression actually indicate that the restraining effect of Sanofi’s bundled *increased* over time. Because Professor Rubinfeld’s Table 5 uses a “No Contract & Buys Pediatric” coefficient instead of my “Buys Pediatric” coefficient, one must

<sup>947</sup> Rubinfeld Report ¶417.

remember to account for the reverse natural link when measuring the isolated effects of the bundled penalties.<sup>948</sup> After accounting properly for the reverse natural link, the isolated effect of the bundled penalties on System members in the pre-Recommendation period =  $-8.9\% - (7.9\%) - 2.4\% = -3.4$  percentage points, while this isolated effect in the post-Recommendation period =  $-14.3\% - (-9.2\%) - 3.0\% = -8.1$  percentage points. In other words, the isolated effect of the bundled penalties reduced the Menveo share at 4P systems by 3.4 percentage points before the ACIP recommendation and by 8.9 percentage points after that recommendation. Thus, Professor Rubinfeld's Table 5 indicates that the restraining effect of the Bundle on systems increased over time. Likewise, the isolated effect of the bundled penalties on PBG members according to Professor Rubinfeld Table 5 in the pre-Recommendation period =  $-3.6\% - 0.1\% - 2.4\% = -6.1$  percentage points, while this isolated effect in the post-Recommendation period =  $-6.0\% - 2.2\% - 3.0\% = -11.2$  percentage points. In other words, the isolated effect of the bundled penalties reduced the Menveo share at PBG members by 6.1 percentage points before the ACIP recommendation and by 11.2 percentage points after that recommendation. Professor Rubinfeld's Table 5 therefore indicates that the restraining effect of the Bundle on PBG members also increased over time.

518. In sum, Professor Rubinfeld has failed to refute my functional analysis showing that the reverse natural link is due in part to reconstitution preferences and the temporary ACIP booster recommendation. Even the regressions he presents in an attempt to refute the reverse natural link actually support the reverse natural link.

519. **c. My Menveo Share Regression Does Refute Professor Rubinfeld's "Natural Link" Theory.** In my opening merits report, I explained why there is no "natural link." I based this conclusion not only on: (a) the lack of any evidence supporting such a natural link, and (b) functional analysis indicating there should actually be a *reverse* natural link; but also on (c) my Menveo share regression, which statistically shows that there is a substantial *reverse* natural link.<sup>949</sup> As I explained in my opening merits report and above in section 1, my Menveo share regression indicates that, among non-contract customers (who do not face additional bundled penalties for buying Menveo), those who buy Sanofi Pediatric vaccines actually have *higher* (+2.9 percentage points) Menveo shares

<sup>948</sup> See *supra* section 1.

<sup>949</sup> Elhaug Merits Report ¶212-17.



than those who do not buy Sanofi Pediatric vaccines. This indicates that there is a *reverse* natural link – i.e., that customers who buy Sanofi Pediatric vaccines have *weaker* average preferences for Menactra relative to Menveo. Professor Rubinfeld has three arguments that my Menveo share regression does *not* refute his natural link theory, none of which is valid.

520. *First*, Professor Rubinfeld argues as a matter of theory that analyzing whether non-contract customers who buy Sanofi Pediatric vaccines have higher Menveo shares than non-contract customers who don't buy Sanofi Pediatric vaccines cannot indicate whether there is a "natural link" for contract buyers.<sup>950</sup> In other words, Professor Rubinfeld is arguing that, even if my Menveo share regression refutes a "natural link" for non-contract buyers, the "natural link" might still exist for contract buyers. His argument fails because he has provided no reason to believe that any "natural link" (or reverse natural link) would exist for non-contract buyers but not contract buyers, or vice versa. His whole theory of the "natural link" rests on his assumption that customers' purchases of Sanofi pediatric vaccines makes them more likely to buy Sanofi's other vaccines (such as Menactra) because it makes them like Sanofi's other vaccines more, *not* because Sanofi's bundled contracts give them an incentive to buy Sanofi's other vaccines. In other words, Sanofi's "natural link" theory itself assumes that the relationship between buying Sanofi Pediatrics and a preference for Menactra is *independent of customer contract status*.

521. Professor Rubinfeld asserts that the reverse natural link could exist for non-contract customers, but not contract customers, based on the premise that "non-contract customers are precisely those customers one would expect to be more likely to have a lesser preference for Sanofi products in general (including pediatrics and Menactra)."<sup>951</sup> Professor Rubinfeld is wrong that the Menveo share regression's estimate of the reverse natural link relies on the assumption that contract customers have identical average preferences for Menactra as contract customers. My Menveo share regression's estimate of the reverse natural link actually relies only on the assumption that the *relationship between buying Sanofi pediatric vaccines and preference for Menactra* is the same for contract and non-contract customers.

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<sup>950</sup> Rubinfeld Report ¶408.

<sup>951</sup> Rubinfeld Report ¶408.

522. For example, suppose hypothetically that there is no natural link, but that non-contract customers have weaker average preferences for Menactra than contract customers (as Professor Rubinfeld posits). Because we are assuming no natural link, Menveo's average share among non-contract customers would be the same regardless of whether they bought Sanofi Pediatrics (let's say 20%). But under Professor Rubinfeld's assumption that contract customers have stronger inherent preferences for Menactra than non-contract customers Menveo's average share among contract customers would be lower, say 10%. In this situation, where contract customers have stronger inherent preferences for Menactra than non-contract customers, my Menveo share regression would still accurately indicate that there is no natural link (under this hypothetical) because Menveo's share among non-contract customers is the same regardless of whether customers buy Sanofi Pediatric vaccines. Thus, his assumption that non-contract customers have weaker inherent preferences for Menactra than contract customers would not cause my Menveo share regression to falsely indicate that there was a reverse natural link if there actually was no natural link. In other words, Professor Rubinfeld's assumption that non-contract customers have a weaker average preference for Menactra than contract customers is a red herring that has nothing to do with whether the reverse natural link differs between contract customers and non-contract customers.<sup>952</sup>

523. *Second*, because my Menveo share regression defines each customer's contract status based on data before Menveo entry, there is no reason to believe it is connected to a relative preference for Menactra versus Menveo.<sup>953</sup> Professor Rubinfeld simply ignores this point.

524. *Third*, Professor Rubinfeld points out that the Menveo share regression indicates that there is *no* natural link (as opposed to a reverse natural link) if one adds the spurious Buys\_GSK/Merck variable.<sup>954</sup> I explain in detail why the Buys\_GSK/Merck variable is spurious below in section 4. Moreover, while including the spurious Buys\_GSK/Merck variable causes his regression to miss the reverse natural link, his regression still shows there is no affirmative natural link, and he need to show an affirmative natural link to support his

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<sup>952</sup> Moreover, because my Menveo share regression defines each customer's contract status based on data *before* Menveo entry, there is no reason to believe it is connected to a relative preference for Menactra versus Menveo. Professor Rubinfeld never addresses this point.

<sup>953</sup> Elhauge Merits Report ¶202.

<sup>954</sup> Rubinfeld Report ¶¶409-410.

argument about the Menveo share regression. The fact that the Menveo share regression *still* refutes Professor Rubinfeld's claim that there is a "natural link" even if one includes the spurious Buys\_GSK/Merck variable is strong evidence refuting his "natural link theory."

525. *Fourth*, Professor Rubinfeld points out that the Menveo share regression indicates a natural link if one *not only* includes the spurious Buys\_GSK/Merck variable, *but also* further reduces the accuracy of the regression by halving the sample size for no theoretically justifiable reason.<sup>955</sup> I explain below in section 5 that it is inappropriate for Professor Rubinfeld to reduce the accuracy of the regression by halving the sample size for no theoretically justifiable reason. I further explain that my Menveo share regression still indicates a *reverse* natural link if one halves the sample size but does *not* also add the spurious Buys\_GSK/Merck variable. It is further evidence refuting Professor Rubinfeld's unsupported "natural link" theory that, in order to distort the Menveo share regression enough to make it indicate there is a "natural link," Professor Rubinfeld must make *multiple* inappropriate adjustments *simultaneously*.

#### 4. Spurious "Buys\_GSK/Merck" Variable

526. In his academic writing, Professor Rubinfeld has acknowledged that defense experts can always distort regression results to make them indicate there is no effect by simply adding enough spurious independent variables.<sup>956</sup> That is precisely what Professor Rubinfeld has done here by adding a "Buys\_GSK/Merck" variable into his rerunning of my Menveo share regressions. Professor Rubinfeld's "Buys\_GSK/Merck" variable is a dummy variable equal to 1 (on) if a given customer buys Pediatric vaccines from GSK or Merck. There is no valid theoretical justification for including the Buys\_GSK/Merck variable in my Menveo share regression.

527. **a. There Is No Theoretical Justification for Including Buys/GSK Merck Variable.** Professor Rubinfeld's "Buys\_GSK/Merck" variable is a prime example of a spurious independent variable because there is no valid theoretical

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<sup>955</sup> Rubinfeld Report ¶411, ¶435, Table 8.

<sup>956</sup> Rubinfeld & McCrary, *Measuring Benchmark Damages in Antitrust Litigation*, 3 JOURNAL OF ECONOMETRIC METHODS 63, 67 (2014) ("it is always possible to use an in-sample model selection procedure to produce a damages estimate of zero, just by adding a sufficient number of irrelevant covariates so that the model fully explains prices in the conspiracy period.").

justification for including it in the Menveo share regression. Professor Rubinfeld's "customer preference" theory is that if a customer purchases one vaccine from a given manufacturer, it is more likely to inherently prefer other vaccines from that *same* manufacturer. For example, Professor Rubinfeld argues that customers who purchase one of Sanofi's Pediatric vaccines are more likely to inherently prefer *Sanofi's* MCV4 vaccine, Menactra.<sup>957</sup> He relatedly argues that "customers may prefer one-stop shopping which would allow them to save on transaction costs and the effort involved in purchasing from multiple suppliers."<sup>958</sup> Although Professor Rubinfeld actually provides no valid support for either of these theories, the crucial point here is that the logic of both theories is that if a customer buys one vaccine from a given manufacturer, it is more like to prefer buying other vaccines *from that same manufacturer* (for reasons besides the bundled contracts).

528. However, in the period covered by the regression, GSK and Merck made *neither* Menactra nor Menveo, and therefore Professor Rubinfeld does not even have a *theoretical* claim that there is any causal relationship between: (a) buying vaccines from GSK or Merck and (b) customers' preferences for MCV4 vaccines made by *completely different manufacturers*, Sanofi and Novartis. Put another way, even if one accepted Professor Rubinfeld's premise that purchasing GSK/Merck Pediatric vaccines made a customer more likely to inherent prefer other GSK/Merck vaccines, Professor Rubinfeld has no explanation of how that preference for GSK/Merck vaccines would in any way be relevant to customers' inherent preferences for Sanofi's or Novartis' MCV4 vaccines.

529. Even if one accepted Professor Rubinfeld's premise that customers prefer purchasing from fewer manufacturers to minimize transaction costs, that provides no reason why buying GSK or Merck pediatrics would have any effect on whether a customer buys Menveo because GSK and Merck made no MCV4 vaccine during the regression period. Whether this asserted preference cuts against a Menveo purchase is affected not by whether the customer buys GSK/Merck pediatrics, but rather by whether the customer buys Sanofi pediatrics, and my regression already has a variable for whether the customer buys Sanofi pediatrics. If a buyer does not purchase Sanofi pediatrics, whether or not the buyer purchases GSK/Merck pediatrics does not alter the fact that a customer choice to buy Menveo

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<sup>957</sup> Rubinfeld Report ¶399 ("Positive prior experience with Sanofi pediatrics, for example, would reasonably be expected to lead to greater purchases of Menactra relative to Menveo, irrespective of the challenged conduct.").

<sup>958</sup> Rubinfeld Report ¶404.

does not affect the number of suppliers from which the buyer purchases. If a buyer does purchase Sanofi pediatrics, whether or not the buyer also purchases GSK/Merck pediatrics does not alter the fact that a customer choice to buy Menveo increases by one the number of suppliers from which the buyer purchases. Either way, purchasing GSK/Merck has no bearing on the extent to which buying Menveo alters the number of suppliers. The GSK/Merck variable thus has no logical connection to whether this asserted preference affects the MCV4 choice. Further, to the extent such a preference exists, any effect from it would be fully picked up by the Sanofi pediatric variable.

530. Professor Rubinfeld does not support his inclusion of the Buys\_GSK/Merck variable with any theory, logic, or evidence. Instead, he merely states the *ipse dixit* that “Non-contract customers who purchase GSK pediatrics would be expected to have a higher Menveo share relative to customers who bought only Sanofi pediatrics,” without any explanation why one should “expect” that.<sup>959</sup> Thus, Professor Rubinfeld not only lacks any *evidence* to support his inclusion of a Buys\_GSK/Merck variable, but also lacks even a valid *theory* as to why including it might be appropriate. That is the definition of an irrelevant, spurious independent variable.

531. **b. Any Correlation Between GSK/Merck Pediatrics and Menveo Is Likely Driven by the Bundle Itself.** To the extent the positive correlation between the GSK/Merck Pediatrics variable and the Menveo share variable is not purely spurious, the most likely cause of that correlation is the Bundle itself. For customers whose contracts include the Bundle (PBG and 4P), one would expect the Bundle to drive a positive correlation between the Buys\_GSK/Merck Pediatrics variable and the Menveo share variable. Because the Bundle requires customers to pay higher prices on Sanofi Pediatric vaccines if customers buy Menveo, the Bundle forces customers who buy Menveo to also buy GSK/Merck Pediatric vaccines if they want to avoid paying higher prices on Sanofi Pediatric vaccines.<sup>960</sup> But this reason to expect a positive correlation presumes exactly what Professor Rubinfeld is trying to deny: that the Bundle distorts customer purchasing decisions.

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<sup>959</sup> Rubinfeld Report ¶409.

<sup>960</sup> These customers who switch to GSK/Merck Pediatric vaccines to avoid paying higher prices on Sanofi Pediatric vaccines still suffer a bundled disloyalty penalty in the form of having to use less medically-preferred Pediatric vaccines. For some customers the penalty of using less medically-preferred Pediatric vaccines is smaller than the financial penalties on Sanofi’s Pediatric vaccines.



532. For customers who contracts do not include the Bundle (GPO Access and Non-Contract), one would expect variation in customers' price sensitivity to drive a positive correlation between the Buys\_GSK/Merck Pediatrics variable and the Menveo share variable. GPO Access and Non-Contract customers faced significantly higher incremental prices for both Menactra (because the nominal disloyal Menactra price was higher and these customers did not face additional bundled penalties for buying Menveo) and Sanofi's Pediatric vaccines (because disloyal Pediatric prices are much higher than loyal Pediatric prices). That would drive relatively more price-sensitive GPO Access and Non-Contract customers to buy Menveo (instead of Menactra) and GSK/Merck Pediatric vaccines (instead of Sanofi Pediatric vaccines), which would create a positive correlation between Menveo and GSK/Merck Pediatric vaccines. But this positive correlation is driven by penalties on unbundled purchases and thus is, again, merely a consequence of the Bundle itself.

533. Accordingly, to the extent any positive correlation between the GSK/Merck variable and the Menveo share variable is not purely spurious, it is likely just picking up some of the effect of the Bundle itself. Including the GSK/Merck variable thus predictably, but inaccurately, attenuates findings about the effect of the Bundle.

534. **c. Fact that Including Buys GSK/Merck Variable Increases  $R^2$  Does Not Justify Its Use.** Professor Rubinfeld notes that including the Buys\_GSK/Merck increases the  $R^2$  of the Menveo share regression.<sup>961</sup> Notably, Professor Rubinfeld does not actually argue that this indicates it is appropriate to include the Buys\_GSK/Merck variable. Mathematically, including an additional independent variable that has any correlation with the dependent variable (no matter how slight) *always* increases the  $R^2$  of a regression, regardless of whether the relationship between the dependent variable and the additional independent variable is spurious or real.<sup>962</sup> For this reason, econometrics textbooks explain that

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<sup>961</sup> Rubinfeld Report n. 501.

<sup>962</sup> A.H. STUDENMUND, USING ECONOMETRICS, A PRACTICAL GUIDE 51 (4<sup>th</sup> ed. 2001) ("A major problem with  $R^2$  is that adding another independent variable to a particular equation can never decrease  $R^2$ ."); *id.* at 51, n.6 ("The coefficient of the newly added variable being zero is the only circumstance in which  $R^2$  will stay the same when a variable is added. Otherwise,  $R^2$  will always increase when a variable is added to an equation.")

one should not choose regression models based on which provides the highest  $R^2$ .<sup>963</sup>

535. **d. Fact that Including Buys GSK/Merck Variable Changes Buys Pediatric Coefficient Does Not Justify Its Use.** Professor Rubinfeld also suggests that it is appropriate to include the spurious Buys\_GSK/Merck variable based on the premise that doing so causes the “Buys\_Pediatric” variable (which measures the relationship between buying Sanofi Pediatric vaccines and Menveo share) to change from +3% (indicating a reverse natural link) to approximately 0% (indicating no natural link).<sup>964</sup> Professor Rubinfeld cites no academic literature for his incorrect claim that it is appropriate to include an independent variable if it changes the coefficients of other independent variables. Indeed, Professor Rubinfeld’s claim contradicts his own previous academic writings, in which he has explained that defense experts can always reduce the regression coefficient of a variable to 0% by simply adding enough spurious independent variables.<sup>965</sup> That is all Professor Rubinfeld has done here with his spurious Buys\_GSK/Merck variable.

536. **e. Menveo Share Regression Still Indicates Bundle Restrained Customer Decisions Even if One Includes Spurious Buys GSK/Merck Variable.** Professor Rubinfeld also ignores the fact that my Menveo share regression still indicates that the Bundle has restrained customer decisions even if one improperly includes his spurious Buys\_GSK/Merck variable. Table 8 below shows the results of my Menveo share regression if one includes the spurious Buys\_GSK/Merck variable (but keeps everything else the same).

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<sup>963</sup> DAMODAR GUJARATI, BASIC ECONOMETRICS 222-223 (2008) (“a high  $R^2$  is not evidence in favor of the model and a low  $R^2$  is not evidence against it. In fact the most important thing about  $R^2$  is that it is not important in the [Classical Regression] model.”); KENNEDY, A GUIDE TO ECONOMETRICS 380 (6<sup>th</sup> ed. 2008) (“In general, do not pay much heed to  $R^2$ .”).

<sup>964</sup> Rubinfeld Report n. 501 (“the fact that one observes a fairly substantial change in the ‘Buys\_Pediatric’ coefficient from adding the GSK/Merck control is consistent with there being a problem of omitted variables bias in Professor Elhauge’s regression.”); Rubinfeld Report Table 3.

<sup>965</sup> Rubinfeld & McCrary, *Measuring Benchmark Damages in Antitrust Litigation*, 3 JOURNAL OF ECONOMETRIC METHODS 63, 67 (2014) (“it is always possible to use an in-sample model selection procedure to produce a damages estimate of zero, just by adding a sufficient number of irrelevant covariates so that the model fully explains prices in the conspiracy period.”).

<b>Table 8: Regression Results</b> <b>Effect of Bundled Disloyalty Penalties on Menveo Share</b> <b>PBGs vs. Systems</b> <b>(Incorrectly Including Spurious Buys_GSK/Merck Variable)<sup>966</sup></b>			
<b>Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>p-value (zero null hypothesis)</b>
Buys Pediatric	-0.3%	0.6%	67%
System No Pediatric	-9.2%	1.4%	<0.001%
System & Buys Pediatric	-11.6%	0.6%	<0.001%
PBG No Pediatric	1.0%	1.1%	37%
PBG & Buys Pediatric	-4.4%	0.6%	<0.001%
Menactra Price	-0.6%	0.1%	<0.001%
Choice	8.3%	0.4%	<0.001%
Texas Choice	6.4%	0.7%	<0.001%
Buys_GSK/Merck	9.7%	0.4%	<0.001%

537. With the spurious Buys\_GSK/Merck variable, the Buys\_Pediatric coefficient is essentially zero and is not even remotely close to being statistically significantly different from zero. Thus, the Menveo share regression refutes Professor Rubinfeld’s “natural link” claim, *even if one includes the spurious Buys\_GSK/Merck variable*. This illustrates that, for Professor Rubinfeld to distort the Menveo share regression enough to support his “natural link” theory, he must *not only* include a spurious Buys\_GSK/Merck variable, but also make *additional* inappropriate assumptions.<sup>967</sup>

538. With the spurious Buys\_GSK/Merck variable, the isolated effect of just the bundled penalties on systems equals the coefficient for “System & Buys Pediatric” minus the coefficient for “System No Pediatric, which here is negative 2.4%. Menveo’s average share among customers in the “System & Buys\_Pediatric” group was only 1.6%,<sup>968</sup> meaning that these customers’ Menveo

<sup>966</sup> “MRebut3014a Menveo Share Combined Regression (with BuysGSKMerck).csv”.

<sup>967</sup> Professor Rubinfeld’s main additional inappropriate assumption is to severely restrict the regression sample without any valid theoretical justification. I discuss this error below in Section 5.

<sup>968</sup> “Merits3014 Average Menveo Shares in Regress Sample.txt”.



shares would have instead been 4.0% ( $1.6 + 2.4$ ), or 2.5 times higher ( $4 / 1.6$ ) if they had not faced Bundled penalties on Sanofi Pediatric vaccines, even if they were still subject to the contractual loyalty commitments in their contracts. There would be only an 11% chance of estimating the “System & Buys\_Pediatric” coefficient to be this different from the “System No Pediatric” coefficient if the Bundled penalties actually had no effect on Menveo’s share.<sup>969</sup> Because this is a comparison between two groups of customers that both had contractual commitments to Menactra loyalty, and one distorted by including a spurious variable, it is an extremely conservative measure of the effect of the Bundle on customers’ Menveo shares.

539. With the spurious Buys\_GSK/Merck variable, the isolated effect of just the bundled penalties on PBG members equals the coefficient for “PBG & Buys Pediatric” minus the coefficient for “PBG No Pediatric,” which here is negative 5.4%. Menveo’s average share among customers in the “PBG & Buys Pediatric” group was 9.2%.<sup>970</sup> That means that, even if one incorrectly includes the spurious Buys\_GSK/Merck variable, this regression indicates that these customers’ Menveo shares would have instead been 14.6% ( $9.2 + 5.4$ ), or 1.6 times higher ( $14.6/9.2$ ) if they had not faced Bundled penalties on Sanofi Pediatric vaccines, even if they were still subject to the contractual commitments in their contracts. This finding is still highly statistically significant; there would be less than a 0.1% chance of the regression estimating the “PBG & Buys Pediatric” coefficient to be this different from the “PBG No Pediatric” coefficient if the Bundled penalties actually had no effect on Menveo’s share.”<sup>971</sup>

540. In sum, *even if one includes the spurious Buys\_GSK/Merck variable*, the Menveo share regression does not support Professor Rubinfeld’s claims: (1) that the Bundle had no effect on customer decisions, or (2) that there is a “natural link” between buying Sanofi Pediatric vaccines and inherently preferring Menactra to Menveo. In order to distort the regression enough to support his desired conclusions, Professor Rubinfeld must *not only* include the spurious Buys\_GSK/Merck variable, but also artificially limit the sample size, which I discuss next.

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<sup>969</sup> “MRebut3014a testing coefficient equivalence.txt”.

<sup>970</sup> “Merits3014 Average Menveo Shares in Regress Sample.txt”.

<sup>971</sup> “MRebut3014a testing coefficient equivalence.txt”.

### 5. Combining IMS DDD and Sanofi Transaction Data

541. Any regression that measures the effect of Sanofi's contractual bundled penalties on customers' decision of MCV4 vaccine by definition requires information on both: (1) the Sanofi contract each customer is on, and (2) each customer's purchases of Menveo and Menactra. There is only one systematic database that provides the contract information for each Sanofi customer: Sanofi's transaction data. And the most complete database on customers' MCV4 purchases is "DDD" data from a third-party data aggregator called IMS.<sup>972</sup> Consequently, if one wants to calculate a statistic that requires data on each customer's Sanofi contract status and purchases of Menactra and Menveo, one *must* combine Sanofi's transactional data (for contract information) with the IMS DDD data (for Menactra and Menveo purchase information).

542. To combine two datasets, one requires a variable that is shared by both datasets. Here, that shared variable is the unique "Sanofi customer number" that Sanofi assigns to each of its customers. The "Sanofi customer number" is filled in for all customers in Sanofi's transaction data, and for about 46% of customers who purchased Sanofi products in the IMS DDD data.<sup>973</sup> Thus, buying Menactra or Sanofi Pediatric vaccines does not guarantee that a customer will have its Sanofi customer number identified in the IMS DDD database. For the customers that have "Sanofi customer numbers" filled in both the Sanofi transaction data and the IMS DDD data, you can combine (or "match") these two datasets so that you have both all Sanofi transaction data and all IMS DDD data about a particular customer. In contrast, for customers who either do not appear in the IMS DDD data or do not have their "Sanofi customer number" filled in the IMS DDD data, you have Sanofi contract information but no systematic Menactra and Menveo purchase data. These customers therefore cannot be included in the Menveo share regression dataset because there is no data on the dependent variable (the customer's Menveo share).

543. Professor Rubinfeld apparently has no issue with the general principle of using each customer's "Sanofi customer number" to combine the information about a given customer's Sanofi contract status (gleaned from the Sanofi transaction data) with the information about that customer's Menactra and Menveo

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<sup>972</sup> Novartis did not submit any of its indirect transactional data (i.e., sales made through distributors/wholesalers). This prevents me from using Novartis transaction data to calculate customers' Menveo purchases.

<sup>973</sup> "MRebut07 % of IMS nums who bought Sanofi Prods with Sanofi nums.txt".



purchases (gleaned from the IMS DDD data). Indeed, Professor Rubinfeld does this multiple times in his own report. For example, Professor Rubinfeld uses each customer's "Sanofi customer number" to combine the IMS DDD and Sanofi transaction data when he attempts to: (a) calculate the percentage of 4P and PBG systems customers who buy Menveo,<sup>974</sup> (b) measure the effect of relative Menactra and Menveo prices on Menveo share in the private sector,<sup>975</sup> and (c) alter my Menveo share regressions.<sup>976</sup>

544. However, Professor Rubinfeld *does* take issue with the *time period I used to define each customer's Sanofi contract status*, which I will call the "Sanofi contract definition period" for short.<sup>977</sup> For my Menveo share regression, I defined each customer's contract status based on what Sanofi's data indicated was that customer's contract for its most recent purchase of Menactra *before* Menveo entered in March 2010. Because Sanofi's transaction data produced in this case begins in 2007, that means my "Sanofi contract definition period" is 2007-February 2010. I have explained previously that defining a customer's Sanofi contract status based on Menactra purchases *after* Menveo entry would assuredly cause "endogenous sample selection bias" and therefore render the regression inaccurate.<sup>978</sup> This point is undisputed by Professor Rubinfeld.<sup>979</sup>

545. But Professor Rubinfeld asserts that my "Sanofi contract definition period" causes a different type of selection bias specifically because it is different from the time period I used to calculate each customer's Menveo share in the IMS DDD data, which I will call the "IMS Menveo share measurement period" for short.<sup>980</sup> While my "Sanofi contract definition period" (2007-February 2010) is completely before Menveo entry in order to avoid endogenous sample selection bias, the "IMS Menveo share measurement period" must by definition be *after*

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<sup>974</sup> Rubinfeld Report ¶476.

<sup>975</sup> Rubinfeld Report Part XI.D. Professor Rubinfeld's conjectural variation model relies on a regression that attempts to measure the effect of relative Menactra and Menveo prices on Menveo share in the private segment. Although he did not disclose this regression in his report or his initial backup, Professor Rubinfeld provided it to me after I requested it. See the "ALM Private.do" backup program submitted by Professor Rubinfeld on February 22, 2016.

<sup>976</sup> Rubinfeld Report Tables 3, 4, 5 and 8.

<sup>977</sup> Rubinfeld Report ¶423.

<sup>978</sup> Elhauge Merits report n. 307.

<sup>979</sup> I explained this point previously in my Class Rebuttal report. See Elhauge Class Rebuttal Report ¶84. Sanofi's class expert, David Kaplan, also never disputed this point.

<sup>980</sup> Rubinfeld Report ¶423.

Menveo entry (Menveo has no share at any customers until it enters). In this case, the “IMS Menveo share measurement period” for my Menveo share regression is July 2010-June 2011, which is the first full twelve months of IMS DDD data following Menveo entry.<sup>981</sup> Professor Rubinfeld does not criticize my “IMS Menveo share measurement period.”

546. However, Professor Rubinfeld mistakenly asserts that, because my “Sanofi contract definition period” (2007-February 2010) differs from my “IMS Menveo share measurement period” (July 2010 – June 2011), I “drop important customers” from the Menveo share regression, making it “likely” subject to sample selection bias.<sup>982</sup> Professor Rubinfeld’s *theoretical* argument is that a given “Sanofi contract definition period” will cause a sample selection bias *if* it causes fewer customers to be matched to the IMS DDD data in a way that increases the proportion of non-contract customers dropped relative to the proportion of contract customers dropped.<sup>983</sup> Professor Rubinfeld’s *factual* argument is that using a pre-entry “Sanofi contract definition period” *does* cause fewer customers to be matched to the IMS DDD data, and *does* increase the proportion of non-contract customers dropped relative to the proportion of contract customers dropped.<sup>984</sup> He further argues that using a longer pre-entry “Sanofi contract definition period” will exacerbate his theorized sample selection bias.<sup>985</sup>

547. Professor Rubinfeld’s selection bias argument fails because the evidence indicates (contrary to his premises) that: (a) he is wrong about why and when Sanofi customers will be “dropped” due to their Sanofi customer numbers not being filled in the IMS DDD data; (b) even according to Professor Rubinfeld’s own logic, using a pre-entry “Sanofi contract definition period” should *not* cause his theorized sample selection bias; and (c) even according to Professor Rubinfeld’s own logic, using my longer pre-entry “Sanofi contract definition period” should *not* exacerbate his theorized sample selection bias. As I explain below, the evidence indicates that there is no valid theoretical justification for Professor Rubinfeld critiques of my “Sanofi contract definition period.” He does not give any reason to use the much smaller sample size he uses (by limiting the

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<sup>981</sup> Although Menveo entered in March 2010, Menactra purchases do not appear in the IMS dataset until July 2010.

<sup>982</sup> Rubinfeld Report ¶423. Notably, Professor Rubinfeld never actually asserts that my Menveo share regression “is” subject to sample selection bias, he just states that it “likely” is. *Id.*

<sup>983</sup> Rubinfeld Report ¶427.

<sup>984</sup> Rubinfeld Report ¶427; ¶430; Table 7.

<sup>985</sup> Rubinfeld Report ¶431, Table 7.

Sanofi contract definition period to January-February 2010), and there is no reason to do so other than the invalid reason that doing so is necessary to get results favorable to Sanofi.<sup>986</sup>

548. **a. Professor Rubinfeld is Wrong About Why and When Sanofi Customers Will Be “Dropped” Due to Their Sanofi Customer Numbers Not Being Filled in the IMS DDD data.** In my Menveo share regression, there are some customers for which we have Sanofi contract information gleaned during the “Sanofi contract definition period,” but for whom we have no matching IMS DDD data because either they are not in the IMS DDD data or their “Sanofi customer number” is not filled in the IMS DDD data. Although Professor Rubinfeld calls these customers “dropped,” it is more accurate to say they cannot be included in the regression because we do not have data on the regression’s dependent variable (Menveo share) for them. In any event, the academic literature is clear that dropping observations with missing data is not itself a problem that causes econometric bias.<sup>987</sup>

549. Professor Rubinfeld argues, based *solely* on a self-serving declaration submitted by a Sanofi employee (Dominick York) after I presented my Menveo share regression, that this dropping occurs because my “Sanofi contract definition period” is different from my “IMS Menveo share measurement period.”<sup>988</sup> Sanofi’s declarant said that Sanofi only began sending its customer information to IMS in July 2010, and that therefore customers who do not buy from Sanofi after

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<sup>986</sup> Rubinfeld Report ¶435, Table 8. Although it is necessary, it is not sufficient to get those results because he must also include the spurious Buys\_GSK/Merck variable.

<sup>987</sup> A.H. STUDENMUND, USING ECONOMETRICS, A PRACTICAL GUIDE 400-401 (4<sup>th</sup> ed. 2001) (“If a few observations have incomplete data in a cross-sectional study, you usually can afford to drop these observations from the sample.”); JEFFREY WOOLDRIDGE, INTRODUCTORY ECONOMETRICS 325 (5<sup>th</sup> ed. 2013) (“If data are missing for an observation on either the dependent variable or one of the independent variables, then the observation cannot be used in a standard multiple regression analysis. . . . Other than reducing the sample size available for a regression, are there any *statistical* consequences of missing data? It depends on why the data are missing. If the data are missing at random, then the size of the random sample available from the population is simply reduced. Although this makes the estimators less precise, it does not introduce any bias . . . . In most cases, we just ignore the observations that have missing information.”).

<sup>988</sup> Rubinfeld Report ¶¶423-424, citing December 17, 2014 Declaration of Dominick York. I first presented a Menveo share regression using this methodology in my March 17, 2014 opening class report.

June 2010 will not have Sanofi customer numbers filled in the IMS DDD data.<sup>989</sup> However, the actual data contradicts Professor Rubinfeld and Mr. York's descriptions of the situations in which customers will be missing Sanofi customer numbers in the IMS DDD data.

550. The actual data shows that there are 715 private customers who: (a) bought Sanofi vaccines before July 2010 but afterward bought no Sanofi vaccines (either inside or outside of the Pediatric and MCV4 categories), and (b) nevertheless have Sanofi customer numbers filled in the IMS DDD data.<sup>990</sup> It is thus simply not the case that any customer who did not buy any vaccine from Sanofi during the IMS Menveo share measurement period is dropped because it lacks a Sanofi customer number during that period. The actual data also shows that imperfect matching occurs for reasons totally unrelated to whether customers who stopped buying from Sanofi after June 2010. The IMS DDD data shows that, among customers who have bought Sanofi products since July 2010, 54% of customers do *not* have Sanofi customer numbers filled in the IMS DDD data (meaning they would be “dropped”).<sup>991</sup> Such customers will necessarily be “dropped” from the Menveo share regression regardless of the “Sanofi contract definition period” one uses. In other words, Professor Rubinfeld is wrong that dropping customers is a “problem” that is caused specifically by my decision to use a pre-entry “Sanofi contract definition period.”

551. Similarly, Professor Rubinfeld asserts that “Professor Elhauge’s approach would lead him to likely drop a customer observed in the Sanofi sales data who made a purchase of Menactra at some point in the pre-entry [Sanofi contract definition] period but that switched entirely to Menveo in his [IMS Menveo share] measurement period, and, to the extent the customer also bought pediatric vaccines, bought them all from sources other than Sanofi.”<sup>992</sup> However, the data shows that there are 1,566 private customers who: (a) bought Menactra before Menveo entry; (b) didn’t buy either Menactra or Sanofi Pediatric vaccines

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<sup>989</sup> Rubinfeld Report ¶424, citing York Declaration ¶¶4-5.

<sup>990</sup> “MRebut30 in IMS, bought Sanofi Before but not after Jul2010.txt”.

<sup>991</sup> “MRebut07 % of IMS nums who bought Sanofi Prods with Sanofi nums.txt”. Weighted by all Sanofi product doses, 76% of customers who buy Sanofi products in the IMS DDD database have Sanofi customer numbers. “MRebut07 % of Sanofi doses with Sanofi nums.csv”.

<sup>992</sup> Rubinfeld Report ¶425.

after Menveo entry; and (c) nevertheless have Sanofi customer numbers filled in the IMS DDD data.<sup>993</sup>

552. In his conclusion-driven hypothetical (which I discuss more below), Professor Rubinfeld also implicitly asserts that under my approach “dropped customers [those without Sanofi customer numbers in the IMS DDD database] have a 100% Menveo share.”<sup>994</sup> However, the IMS DDD data shows that Menveo’s share among customers without Sanofi customer numbers filled in was actually only 23% during the IMS Menveo share measurement period.<sup>995</sup>

553. In short, Professor Rubinfeld is wrong that a customer who stops buying Menactra (or Sanofi Pediatrics) before July 2010 will not have a customer number in the IMS DDD database and therefore will be dropped. In fact, a customer does not even need to buy any Sanofi products to be in the IMS DDD database. There are actually 1,447 customers who never bought *any* Sanofi product in the IMS DDD database but still have Sanofi customer numbers in the IMS DDD data.<sup>996</sup> This indicates that Sanofi and IMS attempted to identify Sanofi customer numbers in the IMS DDD database *not only* for customers still buying from Sanofi, but *also* those who had never bought from Sanofi or were no longer buying from Sanofi. It would make sense for Sanofi to be interested in identifying the customers that were not buying from them anymore (or had not ever) because those customers: (1) may be noncompliant with Sanofi contracts and require reminders to become compliant or face enforcement, and (2) are good targets for Sanofi salespeople who wish to convert customers from rivals to Sanofi.

554. In short, the data contradicts Professor Rubinfeld and York’s unsupported assertions about why and when customers are “dropped” due to data mismatches.

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<sup>993</sup> “MRebut30 in IMS, bought mct before mvo entry but neither mct nor san peds after.txt”.

<sup>994</sup> Rubinfeld Report ¶428.

<sup>995</sup> “MRebut30 mvo DDD share Jul2010-June2011 among no sanofi num.csv”. For customers in the IMS DDD data without a Sanofi customer number, there is no variable indicating whether the customer is private or public, so this figure is not an accurate estimate of Menveo’s private share among customers without Sanofi customer numbers. It nevertheless refutes Professor Rubinfeld’s claim that Menveo has a 100% share among any customer that does not have its Sanofi customer number filled in the IMS DDD data.

<sup>996</sup> “MRebut30 IMS DDD sanofi cust num but no sanofi purchases.txt”.



555. **b. Professor Rubinfeld Ignores the Reality that Using a Pre-Entry “Sanofi Contract Definition Period” Does *Not* Actually Increase the Supposed “Dropping” Problem.** Professor Rubinfeld notably failed to test his claim that a smaller proportion of customers will be dropped if one uses a “Sanofi contract definition period” that is the same as the “IMS Menveo share measurement period.” Professor Rubinfeld’s Table 7 attempted to show the percentage of customers in the Sanofi data who do not have Sanofi customer numbers filled in the IMS DDD data (and therefore are “dropped” from the regression), depending on the “Sanofi contract definition period” one uses. His Table 7 did so only for “Sanofi contract definition periods” that were *before* Menveo entry and had no temporal overlap with the IMS DDD data (which begins in July 2010). Professor Rubinfeld’s Table 7 also includes a methodological error that causes him to substantially overstate the percentage customers who are dropped due to their customer numbers not being filled in the IMS DDD data.<sup>997</sup>

556. Table 9 below presents a modified version of Professor Rubinfeld Table 7 that both corrects his methodological error and crucially presents the percentage of customers “dropped” if one uses the *same* time period (July 2010 – June 2011) for both the “Sanofi contract definition period” and the “IMS Menveo share measurement period.” *Even if one uses the same time period* (July 2010 – June 2011) for both the “Sanofi contract definition period” and the “IMS Menveo share measurement period,” 23% of non-contract customers and 1% of contract customers are “dropped” due to not having their Sanofi customer numbers filled in the IMS DDD data.

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<sup>997</sup> Professor Rubinfeld’s Table 7 indicates the percentage of customers who *either*: (a) do *not* have their Sanofi customer numbers filled in the IMS DDD database, *or* (b) *do* have their Sanofi customer numbers filled in the IMS DDD database, but simply did not purchase any MCV4 vaccines from July 2010 – June 2011 and therefore have undefined Menveo shares during that period. The latter condition has nothing to do with imperfect customer matching between the Sanofi database and IMS DDD data.

<b>Table 9: Professor Rubinfeld’s Table 7: Original vs. Corrected Percentage of Sanofi Customers without Sanofi Customer Numbers in the IMS DDD Data, Depending on Sanofi Contract Status Definition Period<sup>998</sup></b>				
<b>Sanofi Contract Status Definition Period</b>	<b>% of Non-Contract Dropped, Professor Rubinfeld</b>	<b>% of Non-Contract Dropped, Corrected</b>	<b>% of Contract Dropped, Professor Rubinfeld</b>	<b>% of Contract Dropped, Corrected</b>
7/2010-6/2011 <sup>t</sup>	24%	23%	2%	1%
1/2010-2/2010 <sup>*</sup>	19%	14%	3%	1%
7/2009-2/2010	31%	23%	8%	4%
2007 - 2/2010 <sup>**</sup>	43%	31%	12%	6%
<sup>t</sup> (post Menveo entry, complete temporal overlap with DDD) <sup>*</sup> Professor Rubinfeld’s preferred sample period (pre-Menveo entry, no overlap with DDD) <sup>**</sup> My sample period (pre-Menveo entry, no overlap with DDD)				

557. Table 9 thus refutes Professor Rubinfeld’s key premise: that the imperfect matching between the Sanofi data and the IMS DDD data is caused by using a “Sanofi contract definition period” that differs from the “IMS Menveo share measurement period.” Indeed, Table 9 shows that the percentage of dropped customers is actually *higher* if one uses the post-entry July 2010-June 2011 “Sanofi contract definition period” than if one uses the pre-entry January-February 2010 “Sanofi contract definition period.” It also shows that the percentage of dropped customers is very low whether one uses the post-entry July 2010-June 2011 “Sanofi contract definition period” or the pre-entry July 2009-February 2010 “Sanofi contract definition period.” Nor is the percentage of customers dropped substantially different between using the post-entry “Sanofi contract definition period” and using the largest pre-entry “Sanofi contract definition period” (2007 to February 2010). Moreover, I show in the next section that Rubinfeld’s theorized selection bias dropping issue would actually get *worse* if one used the post-entry July 2010-June 2011 “Sanofi contract definition period.”

558. In short, Professor Rubinfeld’s whole claim is a red herring without any evidentiary support. His premise is wrong that using a pre-entry “Sanofi contract definition period” that differs from the July 2010-June 2011 “IMS Menveo share measurement period” systematically increases the percentage of

<sup>998</sup> “MRebut37 Professor Rubinfeld Table 7 Corrected.xlsx”.

dropped customers due to imperfect IMS DDD matching. Further, as I explain in the next section, Professor Rubinfeld’s own logic indicates that his theorized “selection bias” would actually be *worse* if one used the same time period (July 2010 – June 2011) for both the “Sanofi contract definition period” and the “IMS Menveo share measurement period.”

559. **c. Professor Rubinfeld Is Wrong That His Theoretical “Selection Bias” Concern Gets Worse Using a Pre-Entry “Sanofi Contract Definition Period” or a Larger Sample.** As noted above, one must define each customer’s Sanofi contract status using data from *before* Menveo entry to avoid endogenous sample selection bias. My Menveo share regression maximizes the sample size while avoiding that endogenous sample selection bias by including all class members who bought Menactra before Menveo entered in March 2010 (and for whom there is available data on all variables in the regression). As I explain below, Professor Rubinfeld can get his pro-Sanofi regression result *only* if he *both*: (1) inappropriately includes the spurious Buys\_GSK/Merck variable, *and* (2) halves the sample size by restricting the “Sanofi contract definition period” to January-February 2010.<sup>999</sup> Although Professor Rubinfeld offers a selection bias theory in an attempt to support reducing the sample size by limiting the “Sanofi contract definition period” to January-February 2010,<sup>1000</sup> his theory is not logically sound even on its own terms.

560. Professor Rubinfeld’s supposed justification for limiting the “Sanofi contract definition period” to January-February 2010 is that he believes the selection bias will increase if a method increases the proportion of dropped noncontract customers relative to dropped contract customers.<sup>1001</sup> Professor Rubinfeld then presents in his Table 7 what he claims are the percentages of

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<sup>999</sup> My Menveo share regression, which uses the longest possible pre-entry “Sanofi contract definition period” had a sample size of over 21,000 customers. “Merits3014 Menveo Share Combined Regression (sep sys and pbg interaction).csv”. In contrast, Professor Rubinfeld’s preferred regression, which uses a significantly shorter January-February 2010 “Sanofi contract definition period” (and also includes the spurious Buys\_GSK/Merck variable), has a sample less than half as large: 9,477 customers. “MRebut3200 Rubin Table 8 Regressions.txt”.

<sup>1000</sup> Rubinfeld Report ¶¶423-435.

<sup>1001</sup> Rubinfeld Report ¶427 (“While the effects of his selection bias would be expected to affect both customers who were identified as contract and non-contract customers in the pre-period, I would expect the bias to be substantially greater for non-contract customers, given that they are the ones that would be expected to make fewer purchases from Sanofi, and be more loyal to Menveo and/or GSK/Merck pediatrics”).

Menactra purchasers from the Sanofi data that are not matched to the IMS DDD data, depending on the time period used to define customers' Sanofi contract status (using Sanofi data). For example, Professor Rubinfeld's Table 7 asserts that, among class members who purchased Menactra from January 2010 to February 2010, 3.4% of "contract" customers are not matched to the IMS DDD data and 19.1% of "non-contract" customers are not matched to the IMS DDD data.<sup>1002</sup> Professor Rubinfeld observes that, according to his Table 7, the percentage of non-contract customers not matched to the IMS DDD data is larger the more one expands the sample (i.e., the more one extends the pre-entry period back in time). Based on this observation, Professor Rubinfeld concludes that his theorized selection bias problem will be worse the larger the sample one uses, which is his purported justification for limiting the sample to customers who bought Menactra from January-February 2010 by using a "Sanofi contract definition period" of January-February 2010.<sup>1003</sup>

561. Professor Rubinfeld's logic fails because the proportion of non-contract customers dropped relative to the proportion of contract customers dropped actually *increases* as one *shrinks* the sample, meaning that his theorized selection bias would actually get *worse* the more one *shrinks* the sample, according to his own logic. Table 10 below shows that the proportion of non-contract customers dropped relative to the proportion of contract customers dropped is significantly higher in Professor Rubinfeld's preferred, shorter "Sanofi contract definition period" (Jan-Feb 2010) than in my extended sample period (2007- Feb 2010). This is true regardless of whether one uses Professor Rubinfeld's incorrect statistics or my corrected versions. Moreover, Table 7 shows that the proportion of non-contract customer dropped relative to the proportion of contract customers dropped is *significantly* higher if one uses a post-entry July 2010-June 2011 "Sanofi contract definition period" that is identical to the "IMS Menveo share measurement period." Thus, according to Professor Rubinfeld's own logic, his theorized selection bias would have actually been *worse* if one used a post-entry "Sanofi contract definition period."

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<sup>1002</sup> I as noted above, Professor Rubinfeld inaccurately overstates the percentage of Sanofi customers who do not have their Sanofi customer numbers filled in the IMS DDD data. See *supra* Table 9.

<sup>1003</sup> Rubinfeld Report ¶¶431-432.

<b>Table 10: Professor Rubinfeld’s Theorized Selection Bias Actually gets Worse with a <i>Shorter</i> Pre-Entry Period<sup>1004</sup></b>		
<b>Sanofi Contract Definition Period</b>	<b>% non-contract dropped divided by % contract dropped, according to Professor Rubinfeld</b>	<b>% non-contract dropped divided by % contract dropped, corrected</b>
7/2010-6/2011 <sup>t</sup>	12.2	17.3
1/2010-2/2010 <sup>*</sup>	5.6	9.6
7/2009-2/2010	3.9	6.4
2007 - 2/2010 <sup>**</sup>	3.7	5.2
<sup>t</sup> (post Menveo entry, complete temporal overlap with DDD) <sup>*</sup> Professor Rubinfeld’s preferred sample period (pre-Menveo entry, no overlap with DDD) <sup>**</sup> My sample period (pre-Menveo entry, no overlap with DDD)		

562. The fact that Professor Rubinfeld’s theorized selection bias would actually get worse the *shorter* one makes the “Sanofi contract definition period” means Professor Rubinfeld has no valid justification for cutting the sample size in half by limiting the “Sanofi contract definition period” January-February 2010. So long as it does not introduce an econometric bias, enlarging the sample should always increase the accuracy of a regression’s results.<sup>1005</sup> Thus, basic econometric principles state that one should always use the largest sample one can without introducing an econometric bias. Professor Rubinfeld has no valid claim that using the largest sample will introduce (or worsen) any econometric bias, so he has no valid support for limiting the sample size.

563. **d. Halving the Sample Size by Limiting the “Sanofi Contract Definition Period” to January-February 2010 Does Not Change Results Unless One Also Adds the Spurious Buys GSK/Merck variable.** Ultimately, Professor Rubinfeld can obtain his desired regression result (indicating a natural link and smaller effects of the bundled penalties) only by *both*: (1) including the spurious Buys\_GSK/Merck variable, *and* (2) halving the sample size by restricting the “Sanofi Contract Definition Period” to January-February 2010 for no theoretically

<sup>1004</sup> “MRebut37 Professor Rubinfeld Table 7 Corrected.xlsx”.

<sup>1005</sup> JEFFREY M. WOOLDRIDGE, INTRODUCTORY ECONOMETRICS, A MODERN APPROACH at 60 (3d ed. 2006) (“Larger sample size results in a smaller variance”).



justifiable reason.<sup>1006</sup> Table 11 below shows that if one only makes the latter error (halving the sample size for no reason), my Menveo share regression still supports my conclusions and refutes Professor Rubinfeld's. The standard errors of the coefficient estimates in this regression are significantly higher than the standard errors from my Menveo share regression, confirming that Professor Rubinfeld has significantly reduced the precision of the regression by halving the sample size.

<b>Table 11: Regression Results</b> <b>Effect of Bundled Disloyalty Penalties on Menveo Share</b> <b>PBGs vs. Systems</b> <b>(Sample Limited to Customers Who Bought Menactra Jan-Feb 2010<sup>1007</sup>)</b>			
<b>Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>p-value (zero null hypothesis)</b>
Buys Pediatric	1.1%	1.7%	50.9%
System No Pediatric	-10.9%	3.5%	0.2%
System & Buys Pediatric	-15.6%	0.9%	<0.1%
PBG No Pediatric	-2.6%	2.8%	34.9%
PBG & Buys Pediatric	-8.8%	0.9%	<0.1%
Menactra Price	-0.2%	0.1%	2.7%
Choice	11.6%	0.8%	<0.1%
Texas Choice	9.7%	1.1%	<0.1%

564. Table 11 shows that, *even if one unnecessarily halves the sample size*, the Menveo share regression still does not support Professor Rubinfeld's claim that there is a "natural link" between buying Sanofi Pediatric vaccines and an inherent preference for Menactra over Menveo. The coefficient on the Buys\_Pediatric variable is *positive* 1.1%, suggesting a *reverse* natural link, and is not statistically significantly different from a null hypothesis that there is no natural link.

<sup>1006</sup> Rubinfeld Report Table 8. My Menveo share regression, which uses the longest possible pre-entry "Sanofi contract definition period," had a sample size of over 21,000 customers. In contrast, Professor Rubinfeld's preferred regression, which uses a significantly shorter January-February 2010 "Sanofi contract definition period" (and also includes the spurious Buys\_GSK/Merck variable), has a sample less than half as large: 9,477 customers. See *supra* note 999.

<sup>1007</sup> "MRebut3200 MSR Jan-Feb No GSKMerck Dummy.xlsx". Professor Rubinfeld actually ran this regression in his backup but did not present it in his report.

565. Table 11 also shows that, *even if one unnecessarily halves the sample size*, the Menveo share regression still indicates a large restraining effect on 4P system customers' decisions. The isolated effect of just the bundled penalties on 4P systems is  $-15.6\% - 10.9\% = -4.7$  percentage points. Menveo's average share among customers in the "System & Buys\_Pediatric" group for this regression was only 1.7%,<sup>1008</sup> meaning that this regression indicates these customers' Menveo shares would have instead been 6.4% ( $1.7 + 4.7$ ), or 3.8 times higher ( $6.4 / 1.7$ ) if they had not faced Bundled penalties on Sanofi Pediatric vaccines, even if they were still subject to the contractual commitments in their contracts. Although this coefficient is large in magnitude (especially given that it is an extremely conservative measure of the effect of the Bundle on customers' Menveo shares<sup>1009</sup>), the difference between the "System & Buys\_Pediatric" coefficient and the "System No Pediatric" coefficient is not statistically significant at conventional levels,<sup>1010</sup> due to the fact that Professor Rubinfeld has significantly increased the variance of these coefficient estimates by halving the sample size of the regression.<sup>1011</sup>

566. Table 11 also shows that, *even if one unnecessarily halves the sample size*, the Menveo share regression still indicates a large restraining effect on PBG customers' decisions. The isolated effect of just the bundled penalties on PBG members is  $-8.8\% - 2.6\% = -6.2$  percentage points. Menveo's average share among customers in the "PBG & Buys Pediatric" group for this regression was 8.5%,<sup>1012</sup> meaning that these customers' Menveo shares would have instead been 14.7% ( $8.5 + 6.2$ ), or 1.7 times higher ( $14.7 / 8.5$ ) if they had not faced Bundled penalties on

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<sup>1008</sup> "MRebut3200 Rubin Table 8 Regressions.txt".

<sup>1009</sup> As I have explained previously, it is an extremely conservative measure of the effect of the Bundle of customers' Menveo shares because "is a comparison between two groups of customers that were both had contractual commitments to Menactra loyalty." Elhauge Merits Report ¶208.

<sup>1010</sup> There would be an 18% chance of the regression estimating the "System & Buys\_Pediatric" coefficient to be this different from the "System No Pediatric" coefficient if the Bundled penalties actually had no effect on Menveo's share. "MRebut3200 Rubin Table 8 Regressions.txt". Conventional tests typically require that this chance be less than 10% to be statistically significant.

<sup>1011</sup> With this shrunk sample the standard error of the System\_No\_Pediatric coefficient is 3.5%, which is over double the 1.4% standard error with the full sample. With this shrunken sample the standard error of the System & Buys Pediatric coefficient is 0.9%, which is 1.5 times as high as the 0.6% standard error with the full sample. Compare "MRebut3200 Rubin Table 8 Regressions.txt" with Elhauge Merits Report Table 11.

<sup>1012</sup> "MRebut3200 Rubin Table 8 Regressions.txt".

Sanofi Pediatric vaccines, even if they were still subject to the contractual commitments in their contracts. Despite the fact that halving the sample size significantly increased the variance of these coefficient estimates, this finding is still highly statistical significant; there would be only a 3% chance of this regression estimating the “PBG & Buys Pediatric” coefficient to be this different from the “PBG No Pediatric” coefficient if the Bundled penalties actually had no effect on Menveo’s share.<sup>1013</sup> As I noted in my merits report, this is an extremely conservative measure of the effect of the Bundle on customers’ Menveo shares because it compares two groups of customers that both had contractual commitments to Menactra loyalty.<sup>1014</sup>

**567. e. Professor Rubinfeld’s Hypothetical Just Assumes a Reverse Natural Link.** In an effort to show that my Menveo share regression “may” be biased, Professor Rubinfeld presents a hypothetical situation where he simply assumes that there is a bias.<sup>1015</sup> In this hypothetical, Professor Rubinfeld not only assumes that there is a sample selection bias, but also that there is an enormous natural link between buying Sanofi Pediatrics and inherently preferring Menactra to Menveo.<sup>1016</sup> Because Professor Rubinfeld’s hypothetical just assumes his conclusions, it does not actually support his argument. Moreover, some of the assumptions of his hypothetical plainly contradict the facts of this case. For example, I just showed that Professor Rubinfeld is wrong that all customers without Sanofi customer numbers in the IMS DDD data have 100% Menveo shares.

**568. f. Professor Rubinfeld’s Conclusion that the Bundle Had Zero Effect on Menveo’s Share Is Internally Inconsistent With His Assertion that the Bundle Offered a Real Discount on Sanofi Pediatrics.** Professor Rubinfeld’s claim that the Bundle has no effect on Menveo’s share is also logically inconsistent with his claim that the difference between loyal and disloyal Sanofi Pediatric prices reflected a true discount from their separate profit-maximizing prices. If both of these Professor Rubinfeld claims were correct, then adopting the

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<sup>1013</sup> “MRebut3200 Rubin Table 8 Regressions.txt”.

<sup>1014</sup> Elhauge Merits Report ¶209.

<sup>1015</sup> Rubinfeld Report ¶429, Table 6.

<sup>1016</sup> Table 6 of the Rubinfeld Report shows he is assuming a natural link between buying Sanofi Pediatric vaccines and inherently preferring Menactra. There, in his hypothetical “Unbiased sample” columns, he assumes the Menveo share is 21 percentage points lower among non-contract customers who buy Sanofi Pediatrics than among non-contract customers who don’t buy Sanofi Pediatrics.

Bundle would significantly lower Sanofi profits on pediatric vaccines (because it would be giving a true discount) without increasing Sanofi profits on Menactra (because Menactra sales would be unaffected). This would make Sanofi's adoption of the Bundle economically irrational because its only effect would be to reduce its profits. Thus, these two claims by Professor Rubinfeld are internally inconsistent, and at least one of them must be incorrect.

569. **g. Professor Rubinfeld's Conclusion that the Bundle Had Zero Effect on Menveo's Share Is Also Internally Inconsistent With His Efficiency Claims.** Professor Rubinfeld's claim that the Bundle has no effect on Menveo's share is also logically inconsistent with his efficiency claims. He claims that the Bundle created efficiencies by increasing the predictability of Sanofi sales, by increasing Menactra sales in a way that allowed it to spread fixed costs, and by increasing Sanofi sales across multiple products in a way that enabled it to achieve economies of scope.<sup>1017</sup> All of his claimed efficiency claims require that the Bundle does affect consumer purchases and would thus be impossible if he were right that the Bundle had no such effect. His claimed efficiencies thus all depend on his conclusion there that the Bundle does affect consumer purchases, which contradicts his claim in this section that the Bundle has no such effect.

#### *6. Menveo Share Regression Indicates a Substantial Restraining Effect*

570. In an attempt to argue that my Menveo share regression indicates an insignificant effect on Novartis' pricing incentives, Professor Rubinfeld draws numerous incorrect conclusions from the results of my Menveo share regressions and his inappropriate modifications to those regressions.<sup>1018</sup>

571. **a. Professor Rubinfeld's Conclusion that the Menveo Share Regression Indicates the Bundle Has a De Minimis Effect Contradicts All Other Evidence.** In concluding that my regression indicates insignificant effects, Professor made numerous statistical and theoretical errors that I address below. But a more general problem is that Professor Rubinfeld's conclusion that the Bundle had a *de minimis* effect on customer decisions contradicts all other evidence in this case. For example, Professor Rubinfeld **does not dispute** that numerous Sanofi and Novartis internal documents acknowledge that the Bundle

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<sup>1017</sup> See *supra* Part III.B.

<sup>1018</sup> Rubinfeld Report ¶¶436-439 & Table 9, ¶539.

had a significant restraining effect.<sup>1019</sup> Indeed, some documents specifically identify Sanofi's Bundle as the largest barrier to customers adopting Menveo.<sup>1020</sup> Professor Rubinfeld's claim contradicts these documents. In addition, his claim that the Bundle does not affect customer decisions contradicts evidence that the Bundle imposed large bundled penalties and that compliance rates with the Bundle were so high that it was economically equivalent to tying.<sup>1021</sup> Moreover, Professor Rubinfeld's claim that the Bundle's effect was too small to affect Novartis' pricing incentives contradicts the evidence showing that Novartis recognized that the Bundle divided the MCV4 market and consequently chose to focus its sales efforts and pricing on unrestrained customers.<sup>1022</sup>

**572. b. Professor Rubinfeld Ignores that the Menveo Share Regression is a Conservative Underestimate of the Bundle's Effect on Menveo's Share at Restrained Customers.** Professor Rubinfeld ignores that the result of my Menveo share regression provides a conservative *underestimate* of the effect of the Bundle on Menveo's share among restrained customers; instead, Professor Rubinfeld wrongly treats this result as a ceiling on the possible effect. As I stressed in my opening merits report, this regression is an "extremely conservative" measure of the effect of the Bundle on customers' Menveo shares.<sup>1023</sup> It is conservative because it is comparing two groups of customers that *both* committed to being loyal on Menactra.<sup>1024</sup> The regression thus ignores the effect on Menveo's share of customers' contractual commitments to buy Menactra and measures only the incremental additional effect from the bundled financial penalty on customers who

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<sup>1019</sup> I presented these documents in Elhauge Merits Report Part V.E.1. Professor Rubinfeld has not disputed any of them.

<sup>1020</sup> See, e.g., Elhauge Merits Report ¶191 ("The Menactra [clinical] message was good information for my contacts to hear but I don't think that is why they stay with Menactra. It is our contract strategy that keeps them from using Menveo.") (quoting SP 01953358).

<sup>1021</sup> Elhauge Merits Report ¶¶172-187, 193-96.

<sup>1022</sup> Elhauge Merits Report ¶¶165-170.

<sup>1023</sup> Elhauge Merits Report ¶¶208-209.

<sup>1024</sup> Elhauge Class Depo. 220 ("Q: Your market share regression shows that the so-called MBLC has reduced Novartis' sales by approximately 4.1 percentage points in the group of Sanofi customers that purchased Sanofi pediatrics? A: No. Again, it's a very conservative floor. And you're interpreting it as an estimate. That floor ignores the effect of the commitments. All it's picking up is the effect of the threat of being denied pediatric – the threat of having pediatric penalties imposed. It doesn't include the effect of the commitment itself. Because all of the customers in that regression have already been subject to the commitment.").



violated their commitments. Professor Rubinfeld never attempts to refute that this makes the regression conservative.<sup>1025</sup>

573. My Menveo share regression result thus indicates that Menveo's share among restrained PBG customers would be *at least* 7.6 percentage points higher (or 1.8 times higher than Menveo's actual share among them) if one eliminated the bundled penalties, but held all other prices equal.<sup>1026</sup> Likewise, my Menveo share regression indicates that Menveo's share among restrained 4P system customers would be *at least* 4.5 percentage points higher (or 3.8 times higher than Menveo's actual share among them) if one eliminated the bundled penalties, but held all other prices equal.<sup>1027</sup>

574. **c. Even My Conservative Estimate Indicates a Large Effect on Novartis' Share Among Restrained Customers and Thus On Its Incentives to Compete on Price for Them.** Professor Rubinfeld claims that my Menveo share regression indicates that Novartis' overall share in the but-for world would be only 2.0 percentage points higher under my regression or 1.2% with his "modified regression."<sup>1028</sup> To do so, Professor Rubinfeld makes four errors: (i) he ignores that the Menveo share regression results are conservative underestimates of the true effect; (ii) he fails to properly account for the reverse natural link when interpreting the regression result; (iii) he wrongly tries to translate the results in to a percentage point marketwide effect when it is instead the percentage effect on restrained private customers that is relevant to Novartis' incentive to cut prices to gain private restrained customers; (iv) his modified regression results repeat the errors of his analysis above; and (v) he ignores the fact that, without the Bundle, prices would be lower and output higher.

575. **(i) Professor Rubinfeld Ignores that the Menveo Share Regression Results Are Conservative.** I have previously explained that my Menveo share regression results are conservative underestimates of the Bundle's effect.<sup>1029</sup> Professor Rubinfeld has not disputed this fact. Yet he completely ignores it when claiming that my Menveo share regression indicates that the Bundle has had at most a 2.0 percentage point effect on Menveo's marketwide share.

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<sup>1025</sup> Rubinfeld Report ¶348 (acknowledging that I explained that these are "conservative" estimates of the bundled penalties and not refuting this fact).

<sup>1026</sup> Elhauge Merits Report ¶209.

<sup>1027</sup> Elhauge Merits Report ¶208.

<sup>1028</sup> Rubinfeld Report Table 9.

<sup>1029</sup> See *supra* Part V.E.6.b.

576. (ii) Professor Rubinfeld Fails to Properly Account for the Reverse Natural Link. Professor Rubinfeld also incorrectly fails to account for the reverse natural link when interpreting my regression results. He asserts that Menveo share regression indicates that, without the bundled penalties, Menactra's share would be 4.7 percentage points lower among restrained PBG members and 1.7 percentage points lower among restrained 4P system customers.<sup>1030</sup> Those figures incorrectly assume there is no reverse natural link even though my Menveo share regression indicated that there is a positive 2.9 percentage point reverse natural link.<sup>1031</sup> These figures should therefore actually be  $4.7 + 2.9 = 7.6$  percentage points (after rounding) for restrained PBG Members and  $1.7 + 2.9 = 4.5$  percentage points (after rounding) for restrained 4P system customers.<sup>1032</sup>

577. (iii) Professor Rubinfeld Wrongly Tries to Translate the Results into a Percentage Point Marketwide Effect, When It Is Instead the Percentage Effect on Novartis' Incentive to Cut Prices to Private Restrained Customers That is Relevant. When evaluating whether the Bundle affected Menveo's share at restrained customers sufficiently to change Novartis' incentives to compete *for those customers*, the relevant measure is not the percentage point change in the overall market, but rather the *percentage* change in Menveo's share *at restrained customers*. As an extreme example, suppose a rival had only a 0.1% share at restrained customers with the challenged conduct, but a 7.7% share without the challenged conduct (a 7.6 percentage point difference, but a 6,600 percent increase). This would clearly affect the rival's incentives to compete for restrained customers – it could gain over 76 times more sales without the conduct. Here, the effect is not as extreme, but is still highly significant.

578. My Menveo share regression indicates that, if the bundled penalties disappeared but all else stayed the same, Menveo's share at restrained PBG members would increase 1.8 times, from 9.2% to 16.8%, and Menveo's share at restrained 4P system customers would increase 3.8 times, from 1.6% to 6.1%.<sup>1033</sup> If one weights these figures by MCV4 doses, then the Menveo share regression indicates that, if the bundled penalties disappeared but all else stayed the same, Menveo's share among private restrained customers would have increased *at least*

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<sup>1030</sup> Rubinfeld Report Table 9.

<sup>1031</sup> Elhauge Merits Report Table 11.

<sup>1032</sup> Elhauge Merits Report ¶¶208-209.

<sup>1033</sup> Elhauge Merits Report ¶¶208-209.

6.9 percentage points, from 7.6% to *at least* 14.5%.<sup>1034</sup> That is an increase of 191% (14.5 / 7.6). Thus, even my Menveo share regression's conservative floor estimate of the Bundle's effect indicates that Menveo would have had a 191% higher share among private restrained customers but-for the Bundle (but assuming all else stayed the same), which means Novartis would have had much stronger incentives to cut prices to compete for private restrained customers without the Bundle.

579. (iv) Professor Rubinfeld's Incorrect Regression Results That Both Halve the Sample Size and Use his Spurious Buys\_GSK/Merck Variable are Not Relevant. To get his 1.2% share effect result in Table 9, Professor Rubinfeld uses the flawed regression results from his Table 8 regression. As noted above, that flawed regression both uses a spurious Buys\_GSK/Merck variable and halves the sample size for no theoretically justifiable reason.

580. (v) Menveo Share Regression Cannot Predict Overall But-for Market Shares Because It Assumes Prices Would Not Change In But-for World. Professor Rubinfeld erroneously calculates but-for market shares using the Menveo share regression results. His method is economically erroneous because, in the but-for world without the Bundle, Menactra and Menveo would price differently than in the actual world. Moreover, what matters for the restraining market division effect is not the effect on Menveo market share, but the effect on market output. As I have shown, market output and Menveo output were restrained significantly below the levels that would have prevailed without the market division created by the Bundle.<sup>1035</sup>

***F. Professor Rubinfeld Ignores That Incremental Price Analysis Indicates the Bundle Divided the Market***

581. In my opening merits report, I used an example with a hypothetical doctor that followed the ACIP schedule to illustrate how the enormous size of the bundled penalties provided further confirming evidence that the Bundle divided the market.<sup>1036</sup>

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<sup>1034</sup> "MRebut91 restrained priv mvo shares weighted.csv." In the Menveo share regression dataset, PBG customers constituted 79% of MCV4 doses purchased by restrained customers and 4P system customers constituted the other 21%. "MRebut91 PBG HS dose weighted ratio MSR Restrained.csv".

<sup>1035</sup> Elhauge Merits Report ¶¶ 359-360.

<sup>1036</sup> Elhauge Merits Report Part V.D.

582. In particular, I showed that, if not for the Bundled penalties, Menactra's incremental price for PBG members would be equal to its nominal price for PBG members (\$98.56 in April 2010), meaning that Novartis could have offered significant savings to all Sanofi PBG customers by undercutting Menactra's nominal price of \$98.56. This would then prompt Sanofi to cut its price in response, producing back-and-forth price cutting until the firms reached the differentiated Bertrand equilibrium prices, which is what occurs in markets where the firms cannot coordinate on customer prices. In contrast, in the actual world the Bundle imposed significant bundled penalties, meaning that the incremental Menactra price for a restrained ACIP-schedule-following doctor would equal the nominal Menactra price (\$98.56) *minus* an \$89.41 per Menactra dose bundled penalty in the form of higher prices on other Sanofi Pediatric vaccines, which results in an incremental Menactra price of \$9.15.<sup>1037</sup> That means Novartis would have to offer the restrained ACIP-schedule-follower a Menveo price of less than \$9.15 in order for that customer to save money by switching from Menactra to Menveo, after accounting for the higher prices the customer would have to pay on Sanofi Pediatric vaccines for being disloyal to Menactra. Thus, the Bundle meant that Novartis could not hope to gain the restrained ACIP-schedule-follower's MCV4 business even with a large Menveo price cut (for example, to \$70). This example thus illustrates how the Bundle guts Novartis' incentive to cut price to restrained customers. Weakening Novartis' incentive to cut price keeps both Menveo and Menactra prices high, which is how the Bundle has anticompetitively inflated MCV4 prices by reducing the intensity of competition in this case.

583. Professor Rubinfeld ignores this comparison of incremental prices with and without the Bundle when that he claims I failed to show evidence that the Bundle caused the market division.<sup>1038</sup> However, in his foreclosure analysis, he does criticize how I calculated Menactra's incremental price after accounting for the Bundled penalties.<sup>1039</sup> He also claims that calculating incremental prices in this case indicates that the Bundle was not anticompetitive given his claim that most PBG and 4P system customers' incremental Menactra prices are not below cost.<sup>1040</sup>

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<sup>1037</sup> Elhauge Opening Merits Report Table 8.

<sup>1038</sup> Rubinfeld Report Part VII.B.

<sup>1039</sup> Rubinfeld Report Part VIII.F.

<sup>1040</sup> Rubinfeld Report Part VIII.F.3.

584. Professor Rubinfeld’s criticisms of my incremental price analysis fail for three reasons. *First*, Professor Rubinfeld is wrong that incremental prices must be below marginal cost to cause anticompetitive harm. To cause a market division that anticompetitively inflates MCV4 prices, Sanofi need only impose large enough bundled penalties on restrained customers to significantly reduce Novartis’ incentive to cut prices. *Second*, I show that Professor Rubinfeld made errors in his attempt to calculate incremental Menactra prices for each customer. *Third*, I show that a corrected version of Professor Rubinfeld’s customer-level incremental price analysis confirms that the Bundle did in fact divide the MCV4 market by gutting Novartis’ incentive to cut price.

*1. Incremental Prices Need Not Be Below Marginal Cost to Cause Anticompetitive Harm*

585. Professor Rubinfeld asserts that bundling can be anticompetitive only if it results in incremental prices that are so far below cost that an equally efficient competitor cannot “profitably compete on price.”<sup>1041</sup> He is wrong on two counts.

586. First, below-cost pricing is *not* a necessary condition for bundling to be anticompetitive. Driving incremental prices below cost is *one* way that Bundling can cause anticompetitive harm, but is not the *only* way.<sup>1042</sup> For example, another way Bundling can anticompetitively raise prices is by dividing the market in a way that reduces the firms’ ability to compete for restrained customers and incentives to compete aggressively on price, as illustrated by both the academic work on market divisions and the facts of this case. To anticompetitively divide the market, the bundler need not drive incremental price below cost, but instead need only reduce incremental prices enough to significantly reduce the number of units the rival will gain by cutting prices, and thus significantly reduce the rivals’ incentive to cut prices.

587. Second, Professor Rubinfeld is wrong that one should compare incremental prices to *marginal* costs to determine whether Bundling will exclude an equally efficient competitor.<sup>1043</sup> The basic, intuitive point is that an equally efficient rival will remain in the market only if it can price high enough to cover *all*

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<sup>1041</sup> Rubinfeld Report ¶506.

<sup>1042</sup> Elhauge Merits Report ¶176 & n. 268 (citing extensive academic literature explaining that bundling can cause anticompetitive harm even when incremental prices are not below costs).

<sup>1043</sup> Rubinfeld Report ¶531.



of the costs it would have to incur to stay in the market. In other words, an equally efficient competitor would lose money by staying in the market if its forward-looking revenue were lower than its forward-looking costs of staying in the market. Thus, for an equally efficient rival to stay in the market, it must cover not only its *marginal* costs of producing additional units of the product it sells, but also the additional, recurring non-marginal costs that it must continually expend to compete in the market (common examples include general and administrative costs and, for some firms, marketing costs). Bundling will thus force an equally efficient rival to exit the market if it results in incremental prices below the bundler's forward-looking cost per unit of staying in the market.<sup>1044</sup>

588. Professor Rubinfeld claims one should instead compare incremental price to *marginal* cost based on the premise that “it could be procompetitive for a firm to sell at a price below its long term cost to gain share in the market.”<sup>1045</sup> But whether it would be more procompetitive for a firm to price at marginal cost is irrelevant for two reasons. First, if a firm cannot cover forward-looking costs it will not stay in the market. Second, the relevant issue is not whether it would hypothetically be procompetitive for Novartis to price lower, but is instead how the Bundle has *actually* affected Novartis' prices and here the Bundle created a market division that anticompetitively elevated Novartis' prices. This is one reason why meeting a price-cost attribution test is not necessary to show that a bundled penalty causes a market division.

589. In this case, the only economic relevance of comparing incremental Menactra prices to any measure of cost is that Sanofi's incremental Menactra

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<sup>1044</sup> The academic literature echoes this logic that to determine whether bundling or predatory pricing would drive an equally efficient competitor out of the market, the relevant measure of cost is those that are variable during the period of the alleged misconduct. PHILLIP AREEDA, ANTITRUST ANALYSIS 199-200 (3d ed. 1981); 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 740d1, at 432 (2d ed. 2002); William J. Baumol, *Predation and the Logic of the Average Variable Cost Test*, 39 J.L. & ECON. 49, 61-62 (1996); Elhauge, *Why Above-Cost Price Cuts to Drive out Entrants Do Not Signal Predation or Even Market Power – and the Implications for Defining Costs*, 112 YALE LAW JOURNAL 681, 707-711 (2003); EINER ELHAUGE, U.S. ANTITRUST LAW & ECONOMICS 411 (2d ed. 2011) (“The proper cost measure used in a cost-based test must take account of the fact that bundled and loyalty discounts can often last a long period because, unlike predatory pricing, they are profitable for the defendant. Because the relevant measure of cost includes all cost that are variable over the period of the alleged violation, . . . , if that period lasts a long time that may include something close to what is typically considered average total costs.”).

<sup>1045</sup> Rubinfeld Report ¶531.

prices being below cost was one for three reasons why Novartis could not overcome the market division with price discrimination.<sup>1046</sup> The other two reasons why Novartis could not overcome the market division with price discriminate are: (1) the Bundle included loyalty commitments,<sup>1047</sup> and (2) the VFC program limited Novartis' ability to price discriminate.<sup>1048</sup> Both of those other two reasons still apply regardless of whether Menactra's incremental price was below cost for any particular customer.

## *2. Incremental Price Methodology*

590. Professor Rubinfeld criticizes my analysis of Menactra's incremental prices on four grounds, none of which changes the ultimate conclusion that analysis of Menactra's incremental prices confirms that the Bundle has divided the MCV4 market.

591. **a. Enforcement.** PBG member commitment agreements and 4P system agreements explicitly require commitment to purchasing Menactra in order to avoid non-penalty Pediatric prices. Professor Rubinfeld nonetheless asserts that, when calculating incremental prices, one should *not* assume that PBG and 4P system customers would pay higher Sanofi Pediatric vaccine prices if they switched to Menveo, based on his factual claim that the Menactra loyalty condition is not enforced.<sup>1049</sup> Professor Rubinfeld is wrong on both theory and facts.

592. On theory, Professor Rubinfeld cites no support for his claim that one should assume that the plain language of a bundled contract is not enforced when calculating incremental prices. The evidence shows that: (a) compliance with the Bundle is so high that it is economically equivalent to tying;<sup>1050</sup> (b) Sanofi salespeople told restrained customers that they would pay higher prices of Sanofi Pediatric vaccines if they defected to Menveo;<sup>1051</sup> (c) Sanofi spent significant resources monitoring customers' loyalty to Menactra and would inform PBGs when members were noncompliant;<sup>1052</sup> (d) Sanofi PBGs would routinely threaten to terminate members who bought Menveo in order to convince them to return to

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<sup>1046</sup> Elhauge Merits Report Part V.D.

<sup>1047</sup> Elhauge Merits Report ¶184.

<sup>1048</sup> Elhauge Merits Report ¶¶185-187, Figure 12.

<sup>1049</sup> Rubinfeld Report ¶520.

<sup>1050</sup> Elhauge Merits Report Part V.E.2.

<sup>1051</sup> Elhauge Merits Report 190, n. 283, citing SP 00501058 at SP 00501070.

<sup>1052</sup> Elhauge Merits Report ¶¶112.

Menactra;<sup>1053</sup> and (e) PBG members who refused to switch back to Menactra were regularly terminated from their PBG contracts.<sup>1054</sup> This evidence all indicates that Sanofi's contracts and conduct caused restrained customers to believe that they would have to pay higher prices on Sanofi Pediatric vaccines if they switched to Menveo, and did in fact deter many of these customers from buying Menveo. Professor Rubinfeld is therefore wrong that one should assume that the Bundle's Menactra loyalty requirement was never enforced (or that customers believed it would not be enforced).

593. **b. ACIP Schedule Change.** In my opening merits report, I showed that Menactra's incremental price for a hypothetical doctor following the ACIP recommended vaccination schedule in April 2010 (the first full month after Menveo entry) was \$9.15.<sup>1055</sup> This period immediately after Menveo entry is the most crucial one for analyzing how the Bundle initially created a market division, which then continued in future years. Professor Rubinfeld notes that ACIP changed its routine vaccination schedule in January 2011 so that it now also recommended Booster MCV4 vaccines.<sup>1056</sup> That doubled the ratio of MCV4 doses to Pediatric vaccine doses that ACIP recommended, and consequently also cut the bundled price penalty for the hypothetical ACIP-Schedule-Follower.

594. Nonetheless, Professor Rubinfeld's own Exhibit 28-1 confirms that, even after the January 2011 Booster dose recommendation, the ACIP-Schedule-Follower would still face a bundled penalty of \$46.94 per MCV4 dose, which results in an incremental Menactra price of \$52.52. Thus, even after the Booster recommendation there would still be an enormous difference between Menactra's incremental price to unrestrained customers (\$105 in January 2011<sup>1057</sup>) and its incremental price to restrained customers following the ACIP schedule (\$52.52). That particularly low incremental price for restrained customers significantly reduces the amount of restrained customers Novartis can gain with a price cut, and thus significantly reduces Novartis' incentives to cut price, which is what drives the market division. Thus, the ACIP Booster MCV4 recommendation change in January 2011 does not alter the conclusion that analysis of Menactra's incremental

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<sup>1053</sup> See *supra* Part II.A.1.

<sup>1054</sup> See *supra* Part II.A.1.

<sup>1055</sup> Elhauge Merits Report Part V.D.

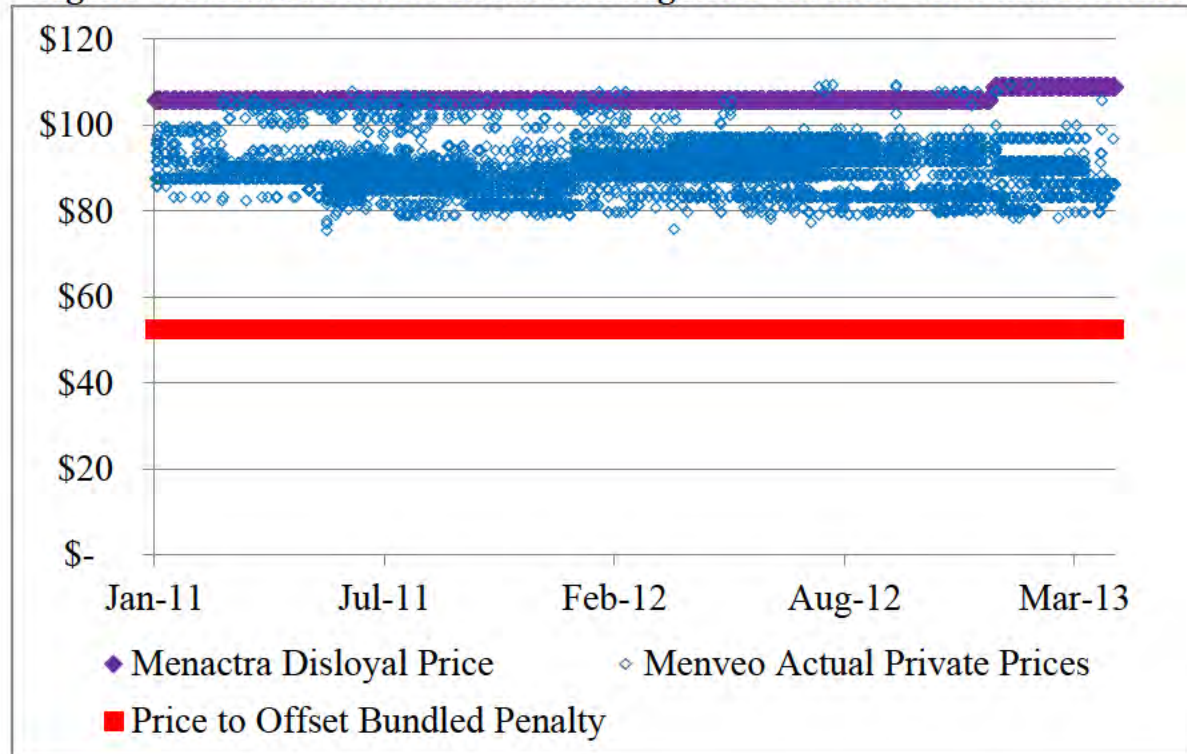
<sup>1056</sup> Rubinfeld Report ¶512.

<sup>1057</sup> "172 List and Contract Prices by Contract Type.xls".

prices further confirms that the Bundle anticompetitively divided the MCV4 market.

595. The Figure below shows that, even after the ACIP's January 2011 booster recommendation, the incremental Menactra price was always far below Menactra's disloyal price and the range in which Novartis priced Menveo.

**Figure 2: Menveo Private Sector Pricing After Booster Recommendation**<sup>1058</sup>



596. **c. VaxMax Discounts.** Professor Rubinfeld asserts incorrectly that I did not account for the VaxMax discounts that restrained customers might be eligible for if they hypothetically purchased under the unrestrained GPO-Access/No-Contract programs.<sup>1059</sup> To the contrary, I explicitly considered the effect of VaxMax discounts on Menactra's incremental prices, and showed that neither the average PBG/GPO performance order, nor the average 4P system order,

<sup>1058</sup> "MR rebut2242 Menveo Price Range 2011-onward (outliers excluded).csv". This output file excludes 0.1% of observations with outlier Menveo prices. The chart stops in April 2013 because that is when the produced Menveo price data stops.

<sup>1059</sup> Rubinfeld Report ¶522.



would qualify for *any* VaxMax discounts if purchased under the GPO-Access/No-Contract program.<sup>1060</sup>

597. (i) Weighting by MCV4 Doses Doesn't Change the Fact that Hardly Any Orders Would Qualify for GPO Access VaxMax Discounts. Professor Rubinfeld asserts I should have the weighted average order by MCV4 doses rather than weighting all orders equally.<sup>1061</sup> But Sanofi's data shows that, even if one weights by MCV4 doses per order (rather than per order), the average VaxMax discount a PBG or 4P system customer would receive on its Pediatric vaccines if it bought under the GPO Access program (and didn't buy Menactra) would be *less than 0.1%* for all Sanofi Pediatric vaccines.<sup>1062</sup>

598. Professor Rubinfeld also inconsistently fails to follow his own methodological advice of weighting by MCV4 doses. When Professor Rubinfeld claims in his Exhibit 29 that approximately 59% of "pediatric vaccine doses purchased under the PBG/GPO Performance contracts would have qualified for" a VaxMax discount, he weighted by *Pediatric* doses, not MCV4 doses.<sup>1063</sup> Weighting by Pediatric doses inflates the weighted average orders that are eligible for Pediatric VaxMax discounts because it by definition places the greatest weight on customers who buy the most Pediatric vaccines, and thus would qualify for the largest GPO-Access VaxMax discounts. But there is no theoretical justification for weighting by *Pediatric* doses when this case is about division of the *MCV4* market. Professor Rubinfeld does not even attempt to argue that there is such a justification.

599. (ii) Professor Rubinfeld Incorrectly Assumes That Purchases Through Wholesalers or Distributors Get VaxMax Discounts. Medical provider purchases made through intermediaries like wholesalers and distributors are not eligible for any VaxMax discounts,<sup>1064</sup> and Professor Rubinfeld simply ignores all their purchases in his incremental Menactra price analysis. That is an especially egregious error for 4P system customers, who order 32% of their MCV4 doses through wholesalers and distributors.<sup>1065</sup> Thus, Professor Rubinfeld's VaxMax

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<sup>1060</sup> Elhauge Merits Report Tables 9-10.

<sup>1061</sup> Rubinfeld Report ¶524.

<sup>1062</sup> "MRebut71 hypo gpoacc vmax disc weighted by mcv4 doses.csv".

<sup>1063</sup> Rubinfeld Report ¶528.

<sup>1064</sup> "MRebut70 VaxMax Discounts for Purchases Through Wholesalers and Distributors.txt".

<sup>1065</sup> "MRebut71 4P syst mcv4 doses p through wholesalers and distributors.csv".



analysis (and resulting incremental price analysis) functionally assumes that all indirect restrained purchasers would receive VaxMax discounts at the same rate that direct restrained purchasers are, even though indirect purchasers would actually be eligible for *no* VaxMax discounts under the GPO-Access program.

600. (iii) Restrained Customers Would Not Change Order Patterns If They Became Unrestrained. The VaxMax discount on the GPO Access program is calculated separately for each *order*, and depends only on the exact products (and number of doses purchased) in that *order*. Thus, two doctors who purchase the same total amount of Sanofi vaccines throughout a given year can get very different VaxMax discounts. For example, a doctor that purchases all of its yearly needs in one big order would likely receive a larger VaxMax discount than a doctor who makes multiple smaller orders throughout the year.

601. Professor Rubinfeld argues incorrectly that restrained customers (who were all on Sanofi PBG/4P system contracts) would have consolidated their Sanofi purchases into less frequent, larger orders in order to qualify to larger VaxMax discounts if they switched to the GPO Access program.<sup>1066</sup> But Professor Rubinfeld's claim conflicts with deposition testimony from a Sanofi employee, Mike Mazutis, who stated that "VaxMax doesn't necessarily work optimally" for health systems because those health systems "want to minimize their inventory levels, order just in time."<sup>1067</sup>

602. None of the statistics that Professor Rubinfeld presents supports his claim that restrained customers would start making less frequent, larger orders to achieve greater VaxMax discounts if they purchased on the GPO Access program. He observes that: (a) on April 22, 2012 Sanofi altered its PBG VaxMax program so that it no longer depended on the number of different VaxMax products in an order; and (b) the total number of Sanofi VaxMax products included per order decreased slightly (by 15%) in the year after that change.<sup>1068</sup> But that statistic not only finds a very small difference, but also is not even about order consolidation. For example, the number of VaxMax products may have decreased simply because

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<sup>1066</sup> Rubinfeld Report ¶¶525-527.

<sup>1067</sup> Mazutis Deposition at 273.

<sup>1068</sup> Rubinfeld Report ¶526,

Sanofi had a Pentacel shortage at the time,<sup>1069</sup> rather than because customers were consolidating orders.

603. Professor Rubinfeld also observes that 4P system customers, who are not eligible for any VaxMax discounts no matter how they order, purchase indirectly more often than PBG customers, who can obtain VaxMax discounts when they order directly. Because indirect orders are not eligible for VaxMax discounts, he claims this supports his argument that customers would consolidate their orders if they switched to the GPO Access program.<sup>1070</sup> Professor Rubinfeld's logic fails for multiple reasons. First, whether a customer prefers to purchase through a wholesaler/distributor or not bears no connection to whether they can consolidate their orders. Second, Professor Rubinfeld ignores that 4P customers are normally large health systems that the evidence indicates inherently prefer to buy through intermediaries.<sup>1071</sup>

604. **d. Using Actual Customer Purchase Ratios Does Not Change Conclusion that Incremental Prices Confirm the Market Division.** Professor Rubinfeld also points out that the ratio of customers' Sanofi Pediatric vaccine actual purchases to their Menactra purchases does not necessarily equal the ratio of ACIP-recommended Pediatric vaccines to ACIP-recommended MCV4 doses.<sup>1072</sup> But as I show in the next section, calculating incremental prices using actual customer purchase ratios does not alter the conclusion that incremental price analysis indicates that the Bundle divided the MCV4 market.

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<sup>1069</sup> Rubinfeld Report ¶115 ("From April 2012 and through 2013, Sanofi imposed supply limitations for Pentacel due to a manufacturing delay that reduced the effective capacity to below the level needed to fully satisfy market demand.").

<sup>1070</sup> Rubinfeld Report ¶527.

<sup>1071</sup> Mike Mazutis Deposition at 106 ("A: . . . we do have hospitals and health systems that prefer to buy through a GPO because they receive discounts – I'm sorry, through a wholesaler. So they have agreements with a wholesaler. So that's out of the gate the tradition, that's their preference. . . Q: So you are saying they did not use VaxMax, is that because they wanted to buy through a wholesaler? A: Largely that was their desire, yes."); [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

<sup>1072</sup> Rubinfeld Report ¶¶513-515.

### 3. Customer-by-Customer Incremental Price Analysis Confirms Market Division

605. Professor Rubinfeld argues that one should calculate Menactra's incremental price separately for each restrained customer. He then attempts to do so and presents pie charts indicating the percentage of restrained customers whose incremental prices exceed cost according to his analysis.<sup>1073</sup> As I have explained in my opening merits report and above in section 1, bundling need not result in incremental prices below cost to cause anticompetitive harm. To anticompetitively divide a market, bundling need only reduce the incremental prices enough to significantly reduce the amount of restrained customers the rival can obtain with any price cut. My hypothetical of the ACIP-Schedule-Follower illustrated that the Bundle did in fact significantly reduce incremental Menactra prices to restrained customers, thus gutting Novartis' incentive to cut price. Nonetheless, I show below that the Bundle also caused Sanofi's incremental Menactra prices to drop below cost for a substantial share of the market, even according to Professor Rubinfeld's methodology.

606. Professor Rubinfeld makes three errors in his customer-by-customer attribution test analysis that inflate his estimates of incremental Menactra prices (and therefore deflate his estimates of how often the Bundle results in below-cost pricing). *First*, Professor Rubinfeld fails to limit his analysis to *restrained* customers; he includes all PBG and 4P system customers even though only those that buy Sanofi Pediatrics are restrained by the Bundle's penalties on Sanofi Pediatric vaccines.<sup>1074</sup> *Second*, Professor Rubinfeld incorrectly ignores that PBG administrative fees are bundled in certain of his analyses.<sup>1075</sup> *Third*, by ignoring

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<sup>1073</sup> Rubinfeld Report ¶¶533-537.

<sup>1074</sup> See Rubinfeld backup programs calculating Exhibits 31-32, such as PBG.sas and 4P.sas.

<sup>1075</sup> All of Professor Rubinfeld's attribution test analysis include 4P system rebates, which as I explained above in Part II.B are prospectively bundled. However, Rubinfeld Exhibits 31-1 and 31-2 incorrectly ignore the effect of the bundled PBG administrative fees on incremental Menactra prices and cost. See Rubinfeld Report n. 641 (acknowledging that he did not include PBG administrative fees in his Exhibits 31-1 and 31-2). It is appropriate to include administrative fees, regardless of whether they are passed on to medical providers, because (a) to the extent they are passed on to medical providers, they increase the bundled penalty for switching to Menveo and thus reduce the incremental Menactra price; and (b) to the extent they are not passed on to medical providers, they represent a marginal cost Sanofi must pay on incremental sales. Thus, regardless of whether administrative fees are passed on to medical providers, they reduce Menactra's incremental price relative to Sanofi's marginal and forwardlooking costs.

sales made through wholesalers and distributors,<sup>1076</sup> Professor Rubinfeld functionally assumes that those sales are eligible for VaxMax discounts at the same rate as direct sales to providers, when in reality no sales made through wholesalers or distributors are eligible for VaxMax discounts.<sup>1077</sup>

607. Despite these errors, Professor Rubinfeld's own analysis shows that the Bundle *did* impose enormous bundled penalties that *were* often so large that they resulted in incremental Menactra prices below cost. Even his incorrect method finds that Sanofi sold 5-6% of MCV4 doses at an incremental price that was below Menactra's marginal cost.<sup>1078</sup> That would be economically irrational unless the Bundle had a restraining anticompetitive effect, and thus his own finding confirms such an effect. Professor Rubinfeld's incorrect methodology relatedly indicates that incremental Menactra prices were below Sanofi's forward-looking cost per dose for 7% of Menactra sales to PBGs and 12% of Menactra sales for 4P systems.<sup>1079</sup> Further, Sanofi sold Menactra at an incremental price below forwardlooking cost to 17% of Sanofi PBG and 4P system customers even according to Professor Rubinfeld's incorrect methodology.<sup>1080</sup>

608. Further, the backup underlying his analysis indicates that even Professor Rubinfeld's incorrect method (with all three errors) shows that the average bundled penalty was \$32.93 per MCV4 dose.<sup>1081</sup> A bundled penalty this size would confirm the other evidence indicating that the Bundle divided the MCV4 market. Further, if one corrects just his erroneous exclusion of bundled PBG administrative fees (but keeps his other two errors), Professor Rubinfeld's method finds an average bundled penalty of \$43.87 per MCV4 dose.<sup>1082</sup> If one corrects just Professor Rubinfeld's first two errors (including unrestrained customers and ignoring the bundled PBG administrative fees), his own

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<sup>1076</sup> See Rubinfeld backup programs calculating Exhibits 31-32, such as PBG.sas and 4P.sas.

<sup>1077</sup> Rubinfeld Report n. 644 makes the additional error of assuming that PBG and 4P system customers would significantly consolidate their orders patterns if they became disloyal so that they could achieve larger VaxMax discounts. *See supra* Part V.F.2. Rubinfeld Exhibits 31-32 do not make this particular error, and none of the statistics I present here that are based off of the version of Professor Rubinfeld's methodology that makes this particular error.

<sup>1078</sup> Rubinfeld Report ¶ 535-36.

<sup>1079</sup> Rubinfeld Exhibit 31-1 (PBG figure); Rubinfeld Exhibit 32-1 (4P system figure).

<sup>1080</sup> MRebut3132 Rubin Ex 31 32 if weighted by custs.csv.

<sup>1081</sup> "MRebut3132 avg penalty rubin ex 31 32 (no PBG fees).csv".

<sup>1082</sup> "MRebut3132 avg penalty rubin ex 31 32 (with PBG fees).csv".

methodology finds that the average incremental Menactra price to restrained customers under this calculation was \$48.90/dose,<sup>1083</sup> and the average bundled disloyalty penalty for restrained customers was \$46.75/dose.<sup>1084</sup> I am not able to correct his third error at this time because of how his programs set up the data, but even correcting only his first two errors produces an average bundled penalty of \$46.75 that is actually a bit higher than the \$46.04 per MCV4 dose penalty that he finds for ACIP-Schedule-Followers after the January 2011 Booster dose recommendation.<sup>1085</sup> His analysis thus does not support his claim that looking at actual purchase patterns produces significantly different results than my calculation of the bundled penalty for the typical doctor that follows the ACIP Schedule.

609. His claim here that bundled penalties of this magnitude were too small to divide the market also contradicts his claim elsewhere in his report that the \$4.10 single-product disloyalty penalty would alone have been large enough to divide the market.<sup>1086</sup> His claim there that a single product loyalty penalty of 4% would suffice to divide the market clearly contradicts his claim here that bundled loyalty penalties of over 30% did not suffice to divide the market.

610. If one corrects only Professor Rubinfeld's first two errors (including unrestrained customers and ignoring the bundled PBG administrative fees), his own methodology indicates that Menactra was sold at an incremental price below *marginal* cost for 25% of restrained customers and 9% of restrained Menactra doses.<sup>1087</sup> It would also indicate that Menactra was sold at an incremental price below *forward-looking* cost for 29% of restrained customers and 13% of restrained Menactra doses.<sup>1088</sup> If one also corrected his third error of excluding sales through wholesalers and distributors, then an even higher share of customers and doses would be below cost, but I am not able to do so at this time.

611. Figure 3 below shows that, if one corrects those same two errors, Professor Rubinfeld's customer-by-customer incremental price analysis confirms

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<sup>1083</sup> "MRebut3132 avg increm price restrained w fees 2010-2012.csv".

<sup>1084</sup> "MRebut3132 avg penalty restrained w fees 2010-2012.csv".

<sup>1085</sup> Rubinfeld Report ¶ 512 & Exhibit 28-1.

<sup>1086</sup> Rubinfeld Report ¶¶342-344; *supra* Part V.A.2.

<sup>1087</sup> "MRebut3132 % below mc restrained w fees 2010-2012.csv".

<sup>1088</sup> "MRebut3132 % below fwd restrained w fees 2010.csv".

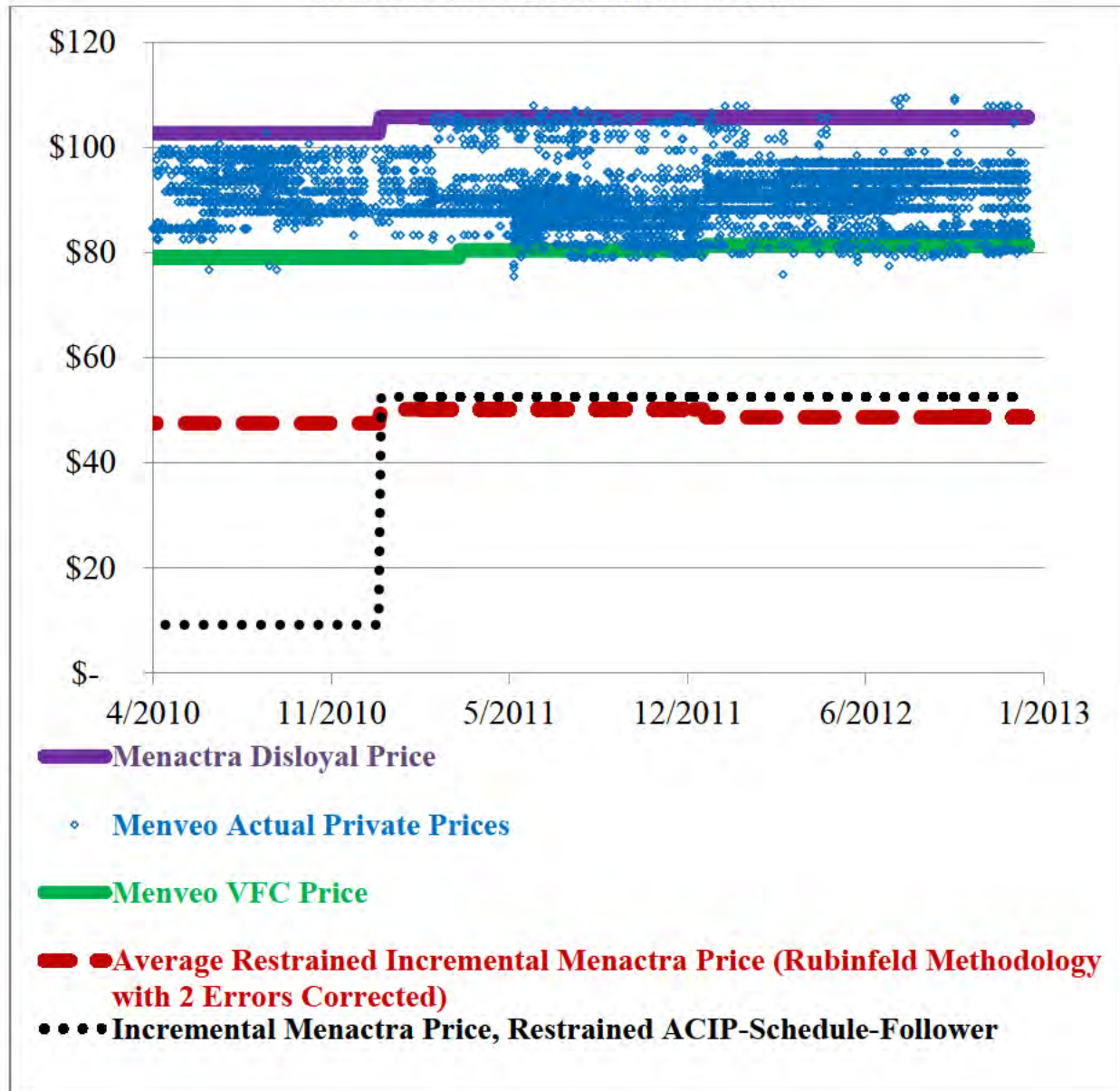


that the Bundle divided the MCV4.<sup>1089</sup> The line titled “Average Restrained Incremental Menactra Price (Rubinfeld Methodology with 2 Errors Corrected)” indicates the average incremental Menactra price in each year according to Professor Rubinfeld’s methodology if one corrects those two errors. It shows that Menveo’s private-sector prices were in a tight band, below Sanofi’s Menactra price to disloyal buyers but above Menveo’s VFC price. This figure thus confirms that Novartis priced below Menactra’s disloyal price but was unwilling to price significantly below the Menveo VFC price. This figure also shows that, even if one corrects only two of Professor Rubinfeld’s errors, Menactra’s average incremental price to restrained customers was always far below the lowest private sector price Menveo was willing to charge and far below its Menveo’s VFC price. This figure confirms that Menveo’s strong disincentive to price below VFC levels limited Novartis’ ability to overcome the market division by price discriminating, because such price discrimination would have required pricing below VFC levels to restrained customers.

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<sup>1089</sup> This is like Figure 12 from my opening merits report, except that it covers a longer time period and incorporates average incremental Menactra prices, calculated using customer-by-customer incremental Menactra price analysis in response to Professor Rubinfeld.

**Figure 3: Menveo Private Sector Pricing, As Compare to Menveo VFC Price and Incremental Menactra Prices<sup>1090</sup>**



<sup>1090</sup> “MRebut2242 Menveo Price Range 2011-onward (outliers excluded), no dups.xlsx”.

## VI. SANOFI'S BUNDLE FORECLOSED A SUBSTANTIAL SHARE OF THE MCV4 MARKET

612. My opening merits report provided extensive evidence that the Bundle restrained (i.e., foreclosed) Menveo sales to customers who were subject to the Bundle. This evidence included:

- (a) Sanofi and Novartis internal business documents and testimony confirming that they each believed the Bundled restrained customers from buying Menveo.<sup>1091</sup>
- (b) The restraining terms of the Bundle.<sup>1092</sup>
- (c) The lack of any possible procompetitive effect, meaning the Bundle must have been motivated by its restraining effect on competition.<sup>1093</sup>
- (d) The affirmative evidence that Sanofi's Bundle was motivated to restrain competition in order to divide the market in a way that raised prices and that Novartis recognized it had that effect.<sup>1094</sup>
- (e) Sanofi's incremental price to a typical restrained customer following the ACIP schedule was below cost.<sup>1095</sup>
- (f) data showing that compliance with Sanofi's Bundle was so high that it was economically equivalent to tying.<sup>1096</sup>
- (g) data showing that Menveo had a significantly higher share among unrestrained customers (30%) than among restrained customers (9%), even though Menveo was an identical product in both segments.<sup>1097</sup>
- (h) regression analysis confirming that the Bundle sharply reduced the ability of Novartis to sell Menveo to restrained customers.<sup>1098</sup>

The preceding sections of this report already rebutted Professor Rubinfeld's critiques of this evidence, and those rebuttals apply equally to his claim that the same evidence does not show any foreclosure.

613. In addition to the above evidence of foreclosure, I calculated a foreclosure share.<sup>1099</sup> I explained that: "In economic analysis of restrictive contract

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<sup>1091</sup> Elhauge Merits Report Part V.E.1.

<sup>1092</sup> Elhauge Merits Report Part III.

<sup>1093</sup> Elhauge Merits Report Part IV.

<sup>1094</sup> Elhauge Merits Report Part V.B, V.C.

<sup>1095</sup> Elhauge Merits Report Part V.D.

<sup>1096</sup> Elhauge Merits Report Part V.E.2.

<sup>1097</sup> Elhauge Merits Report Part V.E.3.

<sup>1098</sup> Elhauge Merits Report Part V.E.4.

<sup>1099</sup> Elhauge Merits Report Part V.E.5.

terms, it is useful to measure how much of the market has been economically foreclosed: i.e., restrained from purchasing rival products. The more of the market that is foreclosed/restrained, the more likely the conduct is to impair rival competitiveness and the more likely an effective market division would be profitable to Sanofi.”<sup>1100</sup> Professor Rubinfeld does not dispute these fundamental theoretical points.

614. I showed that the Bundle had restrained/foreclosed 53-63% of the private segment of the MCV4 market, and 40-52% of the MCV4 market as a whole.<sup>1101</sup> These high restrained/foreclosure shares further support my other analyses and all of the other evidence of foreclosure in this matter, which bolsters the evidence and analyses showing that Sanofi’s Bundle has significantly distorted competition in the MCV4 market by anticompetitively dividing it. Professor Rubinfeld has no valid responses to any of this analysis, as shown next.

***A. Professor Rubinfeld Incorrectly Describes the Necessary Conditions for Foreclosure to Cause Anticompetitive Harm***

615. Professor Rubinfeld’s attempt to enumerate necessary conditions for foreclosure to cause anticompetitive harm suffers from multiple fatal flaws. First, he simply ignores the actual theory of harm in this case, which is that Sanofi’s Bundle divided the MCV4 market, and instead focuses solely on whether foreclosure raised rivals’ costs or drove rivals completely from the market. Second, he wrongly conflates arguments that these *particular* sources of anticompetitive effects (raising rivals’ costs or driving rivals out) were not present in this case with arguments that there were therefore no anticompetitive effects *of any kind* in this case. Third, even his discussion of the raising rivals’ costs theory misstates the economic conditions necessary for it. Fourth, he uses an incorrect measurement of the foreclosure share, causing him to significantly understate the true foreclosure in this case.

616. Notably, none of Professor Rubinfeld’s discussion of whether Sanofi’s contracts substantially foreclosed Novartis from the MCV4 market discusses the actual theory of anticompetitive harm in this case: that Sanofi’s contracts divided the MCV4 market.<sup>1102</sup> For this reason, none of this section of his

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<sup>1100</sup> Elhauge Merits Report at p.128.

<sup>1101</sup> Elhauge Merits Report Tables 12-13 (Corrected) .

<sup>1102</sup> Rubinfeld Report Section VIII ¶¶444-539.

report addresses a relevant question in the case. Instead of addressing all conditions for foreclosure that could cause anticompetitive harm in this case, Professor Rubinfeld fallaciously argues that the foreclosure in this case could not have caused any type of anticompetitive effects based on the premise that it did not result in two particular sources of anticompetitive effects (raising a rival's cost and driving a rival out of the market). That fallacious logic is analogous to observing that a necessary condition for dying from smoking is having smoked, and then concluding that therefore a person who did not smoke could not have been killed by an automobile accident.

617. Professor Rubinfeld asserts, without support or justification, that foreclosure cannot cause anticompetitive effects unless at least one of the following two conditions are met: “either (a) that the rival be driven from the market because it cannot achieve minimum viable scale, or (b) that the rival be unable to compete for sufficient volume to achieve minimum efficient scale, which would effectively raise the rival's costs.”<sup>1103</sup> At most, these are the conditions necessary only for showing two particular sources of anticompetitive effects from foreclosure, not the necessary conditions for *every* type of anticompetitive effect. Additional ways that foreclosure can anticompetitively inflate prices include: (1) by dividing the market, which happened in this case; (2) inefficient price discrimination; and (3) reducing rival expandability.<sup>1104</sup>

618. Professor Rubinfeld also asserts, quoting himself, that “a necessary (but not sufficient) condition for such bundled rebates to be anticompetitive is that they ‘impair... rivals’ *ability* to make competitive offers to potential customers.”<sup>1105</sup> However, all the evidence that I summarized at the outset of this section *does* prove that the Bundle impaired Novartis’ ability to make competitive offers *to restrained customers*.<sup>1106</sup> In his report, Professor Rubinfeld is imposing

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<sup>1103</sup> Rubinfeld Report ¶445. *See also id.* ¶¶467, 481-83 (claiming foreclosure requires evidence that Novartis’s Menveo costs were raised).

<sup>1104</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397 (2009).

<sup>1105</sup> Rubinfeld Report ¶445 (quoting Rubinfeld, *3M’s Bundled Rebates*, *supra* note 524 at 251) (emphasis in his report but not in his article).

<sup>1106</sup> I made this crystal clear in prior reports, but Professor Rubinfeld ignores the point. *See, e.g.*, Elhauge Class Rebuttal Report ¶30 (“Kaplan also asserts that I did not claim that ‘the conduct at issue adversely affected Novartis’s ability to compete.’ That is false. I made clear in my opening class report that Sanofi’s Menactra bundled loyalty condition *did* restrict many



the additional condition that the Bundle must also impair the rival's ability to compete for *unrestrained* customers by raising the rival's costs. But that condition does not appear in the page he quotes from his academic writing.<sup>1107</sup> Indeed, later in the article, his analysis implicitly rejects such a condition because he concludes that bundled discounts are anticompetitive when they are economically equivalent to tying, without requiring any evidence that the effective tie must impair the rival's ability to compete for *unrestrained* customers.<sup>1108</sup>

619. Nor does the economic literature anywhere prove that a necessary condition for bundled rebates to be anticompetitive is that they impair the rival's ability to compete for both restrained *and* unrestrained customers. The economic models underlying Professor Rubinfeld's claim address only the conditions necessary to achieve the particular anti-competitive effect of raising prices by raising rivals' costs or driving out rivals. Those economic models do not purport to address the necessary conditions for bundled rebates to create the anticompetitive effect of dividing markets, which Professor Rubinfeld simply ignores.

620. Moreover, in the article he quotes, Professor Rubinfeld did not actually claim that impairing a rival's ability to compete was a necessary condition for anticompetitive harm. Instead, he stated the far more limited proposition that: "As a **general** rule, one **might** view bundled rebates as anticompetitive if they (a) reduce consumer welfare, and (b) do so by impairing rivals' ability to make competitive offers to potential customers."<sup>1109</sup> The claim that this statement is true as a "general rule" does not mean it is always true. As a general rule, most exclusionary conduct cases are brought by excluded rivals, whose theories of harm usually require that they be impaired. Indeed, Professor Rubinfeld's article was entirely about such a case brought by a rival, and was thus necessarily focused on claims that impaired that rival's sales or costs, rather than theories like market division, which could profit the rival. Further, the claim that one "might" view such bundled rebates as anticompetitive does not mean one might not view other bundled rebates as anticompetitive as well, and his article offered no claim to have proven otherwise. His article was also published in 2005, and thus preceded my 2009 publication of new proofs showing that bundled and loyalty conditions could

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customers from purchasing Menveo and thus adversely affected Novartis's ability to compete for those customers.").

<sup>1107</sup> Rubinfeld, *3M's Bundled Rebates*, *supra* note 524, at 251.

<sup>1108</sup> Rubinfeld, *3M's Bundled Rebates*, *supra* note 524, at 252-253.

<sup>1109</sup> Rubinfeld, *3M's Bundled Rebates*, *supra* note 524, at 251 (emphasis added).

divide markets in ways that anticompetitively harm consumers but profit the rival, and that do not depend on impairing the rival's general ability to make competitive offers to unrestrained customers.

621. Professor Rubinfeld attempts to justify his argument that foreclosure can only raise prices “in a limited number of circumstances”<sup>1110</sup> by offering a “simple illustration” which amounts to an articulation of the failed single monopoly profit theory.<sup>1111</sup> The “single monopoly profit theory” is that a tie cannot increase the monopoly profits a firm already earns on the tying product because a discount on the tying product must be offered to offset any supracompetitive price on the tied product.<sup>1112</sup> In attempting to use that theory here in a hypothetical, Professor Rubinfeld makes several simplifying assumptions that make his hypothetical inapplicable to this case. The single monopoly profit theory depends on five key assumptions, none of which holds in this case: (1) fixed usage of the tied product, (2) strong positive demand correlation, (3) fixed usage of the tying product, (4) fixed tied market competitiveness, and (5) fixed tying market competitiveness.<sup>1113</sup> These assumptions do not hold in this case, and Professor Rubinfeld makes no effort to show that they do. Because different physicians have patients in different age categories,<sup>1114</sup> they do not all use meningococcal vaccines and other pediatric vaccines in the same proportions, nor is their demand for these vaccines perfectly positively correlated. Further, competitiveness in the relevant vaccine markets is not fixed, as evidenced by the fact that Sanofi was able to use its Bundle to divide the market in a way that reduced the incentives of both firms to cut prices.

622. Professor Rubinfeld's failure to acknowledge the actual theory of harm in this case (market division) also causes him to wrongly conflate bundled loyalty conditions with a “classic predatory pricing scheme.”<sup>1115</sup> As I demonstrated in my merits report, “charging different prices to customers depending on whether they are loyal is not the same as reducing prices for all

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<sup>1110</sup> Rubinfeld Report ¶446.

<sup>1111</sup> Rubinfeld Report ¶448.

<sup>1112</sup> Einer Elhauge, *Tying, Bundling, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 397-98, 403-404 (2009).

<sup>1113</sup> *Id.* at 400, 404, 419.

<sup>1114</sup> Rubinfeld Exhibit 1 (showing that MCV4 vaccines are recommended for use starting at age 11 while most other pediatric vaccines are recommended for use before age 2).

<sup>1115</sup> Rubinfeld Report ¶449.

customers.”<sup>1116</sup> Professor Rubinfeld’s confusion between predatory pricing (which involves lowering prices across the board to below-cost levels) and the bundled loyalty discounts at issue here (which instead raise prices to penalty levels on disloyal customers without lowering prices to anyone) leads him to incorrectly assert that multi-product loyalty discounts must involve profit sacrifice in order to cause foreclosure.<sup>1117</sup> “Profit sacrifice” is an economic term involving a circumstance where a firm sacrifices profits in the short-run (e.g., by discounting below cost) in order to drive out rivals and enhance monopoly power in the long-run. In fact, loyalty contracts do not primarily cause foreclosure through genuine price discounting, but rather through their restrictions on purchasing from rivals. Through such conditions, loyalty contracts can cause anticompetitive effects through bundling, by raising rivals’ costs, by raising buyer switching costs, *or* by facilitating market divisions. No genuine price discounting is necessary to cause any of these effects.

623. For example, in this case Sanofi did not reduce prices to any customers when it added the Bundle.<sup>1118</sup> Instead, Sanofi added a bundled loyalty condition on customers (they would now have to pay higher prices for Sanofi Pediatric vaccines if they switched to Menveo) without reducing price to any customers.<sup>1119</sup> In this way, Sanofi’s Bundle meant an equally efficient competitor would have to price below cost to make up for the bundled penalties (which is known as reducing the incremental price of Menactra below cost) even though Sanofi did not reduce any prices on any bundled product to below cost levels. Instead, Sanofi was able to impose this effect by raising the “sham” disloyal price up artificially. Professor Rubinfeld’s conclusion here that bundled loyalty conditions amount to predatory pricing contradicts his academic writing, which recognizes, precisely because of the possibility of such sham discounts, that there are at least three anticompetitive theories other than predatory pricing for analyzing bundled loyalty “discounts.”<sup>1120</sup>

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<sup>1116</sup> Elhauge Merits Report ¶131.

<sup>1117</sup> Rubinfeld Report ¶450 (“it is essential that any foregone profits in the short run be recouped in the long run after the competitor is driven out of business or its scale of operations has been reduced and its costs increased. Absent a reasonable likelihood of recoupment, multi-product loyalty discounts that mimic predatory pricing will not be a successful strategy”).

<sup>1118</sup> Elhauge Merits Report IV.B.

<sup>1119</sup> Elhauge Merits Report IV.B.

<sup>1120</sup> Rubinfeld, *3M’s Bundled Rebates*, *supra* note 524, at 252-262 (recognizing bundled discounts might be anticompetitive under at least four separate theories: “1: Contractual Tying,”

624. For the same reason, Professor Rubinfeld is simply wrong that Sanofi must sacrifice profit for its Bundle to have a foreclosing effect. Because no profit sacrifice is necessary to cause anticompetitive effects, requiring a “reasonable likelihood of recoupment” is an inappropriate test. Indeed, in his academic writing, Professor Rubinfeld treats recoupment as relevant only for one of his four anticompetitive theories, namely the one that says bundled discounts can be anticompetitive when they involve predatory profit sacrifices.<sup>1121</sup> At any rate, even if one were to apply such an inappropriate test, Sanofi’s conduct would necessarily pass it, since it did not in fact sacrifice any profits from its strategy, making its likelihood of “recouping” such non-existent foregone profits 100%.

625. Professor Rubinfeld also understates the foreclosure in this case by adopting an inappropriate and speculative measure of foreclosure at odds with standard antitrust economics. He argues that “evaluating the extent of foreclosure requires a comparison of the entrant’s sales in the actual world with the sales that the entrant would have made but-for the challenged conduct.”<sup>1122</sup> However, the sources he cites make clear that they recommend this narrow foreclosure measure *only* to evaluate claims based on a raising rival’s cost theory.<sup>1123</sup> Professor Rubinfeld’s proposed foreclosure test thus once again illustrates his misguided focus on raising rivals’ costs as the only possible anticompetitive harm caused by foreclosure, which is not the theory of economic harm in this case. Further, his narrow foreclosure measure departs from standard antitrust economics, which makes clear that all sales covered by the challenged bundle should be included in the foreclosure measure and that any evidence that some buyers may have bought from Sanofi regardless of the Bundle is not relevant to the foreclosure share calculation.<sup>1124</sup> Even one of the sources cited by him to support his erroneous

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“2: Predation Through Sacrifice,” “3. Monopoly Maintenance Through the Creation of Entry Barriers”, and “4. Other Pricing Conditions”).

Barriers.

<sup>1121</sup> Rubinfeld, *3M’s Bundled Rebates*, *supra* note 524, at 255-256.

<sup>1122</sup> Rubinfeld Report ¶452

<sup>1123</sup> See, e.g., Joshua D. Wright, *Moving Beyond Naïve Foreclosure Analysis*, 19:5 GEORGE MASON LAW REVIEW 1163, 1163, 1175 (2012) (noting that anticompetitive theories include both predation and exclusion theories, and that for exclusion theories based on raising rivals’ costs, he advocates this narrow foreclosure measure because he believes the standard foreclosure measure “does not accurately predict competitive effects grounded in modern RRC [theories]”).

<sup>1124</sup> 10 AREEDA & HOVENKAMP, ANTITRUST LAW ¶1753c, at 302-304 (3d Ed. 2011) (“A tying agreement is not defeated by evidence that a buyer would have purchased the defendants

foreclosure test acknowledges that including all sales covered by a challenged restraint is the standard measure of foreclosure.<sup>1125</sup>

626. Professor Rubinfeld also never actually applies his proposed foreclosure test to the case at hand. His foreclosure test requires determining whether the rival’s but-for “sales” would be higher than its actual “sales.”<sup>1126</sup> This makes sense because under the raising rivals’ cost theory (which is the only theory he considers), the issue is whether the rivals’ costs are raised by depriving it of economies of scale, which turn on its sales (i.e., its output).<sup>1127</sup> Yet, in his illustration, he shifts the focus to comparing the rival’s actual market *share* to its but-for market *share* and incorrectly defines the minimum efficient scale as a certain market *share*.<sup>1128</sup> That shift in focus from *sales* to *share* is invalid on Professor Rubinfeld’s own terms. If a restraint leaves a firm’s market share

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tied product anyway.... Thus, once the requisite agreement or conditioned sale appears, whether the agreement or condition *caused* buyers to purchase the defendants tied product rather than a rival’s is not in issue” (emphasis in original)); *Id.* at ¶¶1709a, at 89 (3d ed. 2011) (“the foreclosure includes all sales that are, as a practical matter, covered by the defendant’s tie-ins, even if the defendant previously sold the tied product to the same customers without a tie.”); *id.* ¶1709d, at 98 (“all purchases covered by the tie should be counted as foreclosed even when many of the defendant’s customers had voluntarily purchased the same volume of the second product from it before there was any tie-in. Although the tie has not increased the defendant’s sales of the tied product to those customers or the market share represented by them, it has suppressed their previous freedom to transfer their business to competing suppliers during the life of the tying agreement.”); *Id.* at ¶1753c, at 302-304 (“Speculation about what buyers would have done had the defendant allowed them to exercise independent judgment is often unreliable and involves the very sort of burdensome inquiry into actual market conditions the per se rule was meant to avoid. The tribunal would need to examine the buyers’ state of mind at the time of the tying agreement and would need to know not only what buyers thought but what they would have thought in the absence of the tying condition. Moreover, the very existence of the tie prevents buyers from changing their minds and discourages rivals, including new entrants, from trying to woo the buyers from the defendant. There is little reason to undertake that burden when the defendant itself doubted the outcome sufficiently to impose the restraint and when there is a better test. The best way to test whether buyers would otherwise have taken the defendants tied product would be to offer the tying and tied products separately. If the best the defendant can say about otherwise unlawful tying is it has no effect, there is little reason to tolerate it.”).

<sup>1125</sup> Joshua D. Wright, *Moving Beyond Naïve Foreclosure Analysis*, 19:5 GEORGE MASON LAW REVIEW 1163, 1165 (2012).

<sup>1126</sup> Rubinfeld Report ¶452.

<sup>1127</sup> See CARLTON & PERLOFF, MODERN INDUSTRIAL ORGANIZATION 36 (4<sup>th</sup> ed. 2005) (“If average cost falls as output increases, the firm is said to have **economies of scale.**”)(emphasis in original).

<sup>1128</sup> Rubinfeld Report ¶453.



unchanged it can still lower the firm's output if (by raising prices) the restraint lowers market output because the same share of a lower output means a lower firm output. Two slices of pizza from a small pie amounts to less pizza than two slices from a large pie, even though two slices in each case amounts to a *share* of 25%. The key point is that deprivation of output could still deprive the firm of economies of scale and thus raise its costs even if that firm's share remained the same. Likewise, he is wrong that the minimum efficient scale equals a certain market *share*; instead "**minimum efficient scale (MES)** is the smallest output ... it can produce such that its long-run average costs are minimized."<sup>1129</sup> In other words, under Professor Rubinfeld's own approach, what matters is whether Sanofi's Bundle reduced Novartis's sales, *i.e.*, total output, not what effect it may have had on Novartis' market share.

627. This misapplication of Professor Rubinfeld's own test is important because here lower but-for prices did in fact mean that Menveo's but-for output would have been significantly higher.<sup>1130</sup> Thus, even his own incorrect foreclosure test would be satisfied here if he had correctly applied it.

### ***B. Sanofi's Bundle is Exclusionary***

628. Professor Rubinfeld argues, incorrectly, that Sanofi did not foreclose competition based on his assertion that the Bundle was not "exclusionary."<sup>1131</sup> This is incorrect for all the reasons I discuss in Section II of this report.<sup>1132</sup> All of the five bullet points he offers for why the bundle is not exclusionary are flawed.

629. First, Professor Rubinfeld argues that "Sanofi's contracts do not impose any purchase requirements on members of buying groups."<sup>1133</sup> This is economically irrelevant because the evidence shows that Sanofi's contracts and conduct caused PBG members to face bundled penalties if they did not commit to Menactra loyalty or violated their commitment to Menactra loyalty.<sup>1134</sup> Sanofi not only paid the PBGs to impose bundling conditions on their members, but also

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<sup>1129</sup> CARLTON & PERLOFF, MODERN INDUSTRIAL ORGANIZATION 41 (4<sup>th</sup> ed. 2005)(emphasis in original).

<sup>1130</sup> Elhauge Merits Report ¶360, Figure 38 (corrected).

<sup>1131</sup> Rubinfeld Report Section VIII.B ¶¶457-458

<sup>1132</sup> *Supra* Section II

<sup>1133</sup> Rubinfeld Report ¶458

<sup>1134</sup> *Supra* Part II.

directly monitored and enforced individual PBG member commitments.<sup>1135</sup> In short, Sanofi was not some passive actor that happened to benefit from PBG members' purchasing decisions being bundled, but instead was the orchestrator and the driving force of its scheme to make individual PBG members suffer bundled penalties if they switched to Menveo, and, as I have shown, my analysis and the evidence bear that out.

630. Second, Professor Rubinfeld argues that "Sanofi's contracts offer substantial flexibility for the buying groups to allow their members to purchase a competitor's product."<sup>1136</sup> As I explained above in Part II, this is wrong because: (1) Sanofi's Bundle functionally required PBGs and their members to buy near-100% of their MCV4 from Sanofi; (2) Sanofi's Bundle will cause members to buy 100% of their MCV4 from Sanofi so long as they require members to purchase any significant portion of their MCV4 from Sanofi (even if that portion is less than 100%) because of customers' inherent preference to standardize on a single MCV4 vaccines; and (3) Professor Rubinfeld's claim that Sanofi's PBG Bundle offers customers "flexibility" makes no sense because it would clearly offer buyers more flexibility if it did not condition their Pediatric prices on making a Menactra loyalty commitment.

631. Third, Professor Rubinfeld argues that "Sanofi's contracts offer favorable contract prices to individual members regardless of their purchasing profiles."<sup>1137</sup> This erroneous claim is based on Professor Rubinfeld's inaccurate premise that PBG members are free to purchase Menveo without any consequences. In contrast, as I have shown, in reality: (a) PBG members had to make commitments to Menactra loyalty to be eligible for Sanofi PBG contract prices; (b) Sanofi paid the PBGs to monitor and enforce compliance with PBG members' compliance; (c) PBGs did in fact monitor and enforce compliance by threatening noncompliant members with termination in order to make them compliant again, and terminating members who refused to become compliant again; and (d) Sanofi actively drove this monitoring and enforcement process by tracking individual PBG members' Menactra and Menveo purchases and telling PBGs which of their members were noncompliant and needed to be threatened to be terminated (or actually terminated).<sup>1138</sup> Professor Rubinfeld's claim that

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<sup>1135</sup> *Id.*

<sup>1136</sup> Rubinfeld Report ¶458.

<sup>1137</sup> Rubinfeld Report ¶458

<sup>1138</sup> *Supra* Part II.A.

Sanofi's conduct did not cause PBG members to face bundling conditions is analogous to claiming that a mob boss who hires a hitman to kill someone, and then personally helps the hitman track down the victim, played no substantial role in causing the victim to die.

632. Fourth, Professor Rubinfeld argues that "Sanofi's contracts are short-term and terminable at will."<sup>1139</sup> I have already rebutted this fallacious point in Part II.A above. In short, a PBG member cannot evade Sanofi's bundled penalties at all by terminating its agreement – doing so would cause that PBG member's Pediatric prices to immediately increase to Pediatric levels. In other words, if a PBG member terminated its Sanofi PBG agreement, it would simply be self-imposing the bundled penalty on itself, not evading the bundled penalty.

633. Fifth, Professor Rubinfeld argues that "Sanofi has little incentive to terminate contracts even if a buying group or a health system fails to meet the benchmark."<sup>1140</sup> This argument is plainly refuted by the simple fact that Sanofi did in fact terminate a buying group for noncompliance.<sup>1141</sup> This is consistent with economic logic, which suggests that Sanofi would want to be able to credibly threaten PBGs with termination in order to keep them compliant. With such a credible threat, one would expect few PBGs to be noncompliant for fear of termination, making it so that Sanofi need not carry out its threats as often. Indeed, I showed above that 99% of Sanofi PBGs were compliant according to a corrected version of Professor Rubinfeld's "compliance" methodology.<sup>1142</sup>

### ***C. Existence of GSK's Pediatric Vaccines Does Not Eliminate Foreclosing Effects of Sanofi's Bundle***

634. In Section VIII.C of his report, Professor Rubinfeld argues that Sanofi's contracts did not drive Novartis from the market.<sup>1143</sup> In doing so, he once again fails to apply the actual economic theory of the case and focuses on an irrelevant tangent instead. Market divisions never drive rivals from the market, so the fact that Novartis was not driven from the market in this case is irrelevant to assessing the anticompetitive harm caused by Sanofi's dividing the MCV4 market.

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<sup>1139</sup> Rubinfeld Report ¶458

<sup>1140</sup> Rubinfeld Report ¶458

<sup>1141</sup> *Supra* Section II.A.6.

<sup>1142</sup> *Supra* Part II.A.7.

<sup>1143</sup> Rubinfeld Report Section VIII.C ¶¶459-467

635. In his pursuit of this irrelevant tangent, Professor Rubinfeld attempts to distinguish this case from the example he provides of where “simultaneous entry into multiple markets [is required] in order to effectively compete.”<sup>1144</sup> He notes that this case differs from his example because “[c]ompetition in the vaccine industry has historically involved competition between portfolios of vaccines.”<sup>1145</sup> He does not however offer any evidence that this history reflects procompetitive efficiencies, rather than anticompetitive conduct making it harder for new entrants to compete in the highly concentrated vaccine market. The mere existence of a practice does not render it procompetitive, as Professor Rubinfeld seems to imply.

636. In fact, this practice of bundling distorted Novartis’ decision making. After not being able to compete in the restricted portion of the MCV4 market due to the anticompetitive effects of the Bundle, Novartis was forced to partner with, and ultimately sell to, GSK. Professor Rubinfeld offers no evidence that this was a natural efficient collaboration, rather than an inefficient one forced upon Novartis as a result of Sanofi’s Bundle. Further, as Professor Rubinfeld acknowledges, the partnership only became effective in 2013, so could not possibly have mitigated the anticompetitive effects of the bundle prior to that point in time.<sup>1146</sup> And, according to his own description, before 2015 all the partnership meant was that GSK agreed to take Menveo orders, which hard means that it provided a bundle like Sanofi’s.<sup>1147</sup>

637. Also, there is no reason why the collaboration between Novartis and GSK would have any effect the market division caused by Sanofi’s Bundle. Regardless of whether Novartis or GSK owns and sells Menveo, the Bundle will still restrain customers who prefer some (or all) of Sanofi’s Pediatric vaccines from switching to Menveo, and thus will still reduce Menveo’s seller to cut Menveo’s price.<sup>1148</sup> Therefore, the fact that “going forward Menveo will be sold by a multi-

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<sup>1144</sup> Rubinfeld Report ¶459

<sup>1145</sup> Rubinfeld Report ¶460.

<sup>1146</sup> Rubinfeld Report ¶461.

<sup>1147</sup> Rubinfeld Report ¶461.

<sup>1148</sup>

vaccine competitor in competition with Sanofi's portfolio of vaccines, including Menactra" does not reduce the anticompetitive effects of the Bundle.<sup>1149</sup> To the contrary, it continues or worsens the market division effects.<sup>1150</sup>

638. Finally, Professor Rubinfeld's focus on Menveo's profitability and sale to GSK once again illustrates his failure to acknowledge the market division theory. He notes that "GSK paid a substantial sum for Novartis's vaccine business,"<sup>1151</sup> and that "Menveo has been a successful product for Novartis."<sup>1152</sup> These observations, to the extent they are even accurate, are precisely what one would expect to observe if Sanofi's Bundle succeeded in dividing the MCV4 market because market divisions generally increase the profits of *all* firms in the market relative to the world but-for the market division. Menveo's profitability therefore would not refute the anticompetitive effects of Sanofi's Bundle, but instead actually would be consistent with the Bundle anticompetitive dividing the MCV4 market.

[REDACTED]

<sup>1149</sup> Rubinfeld Report ¶461

<sup>1150</sup> Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 475 (2009) ("having two firms use bundled loyalty discounts only worsens the extent to which their cumulative effect can discourage discounting"); Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 194, 214–15, 220 (2009) ("I extend the analysis to cases where multiple firms offer loyalty discounts with commitments, and prove that this exacerbates the anticompetitive effects. The resulting cumulative foreclosure leaves fewer uncommitted buyers available, and thus creates even less incentive for either firm to undercut uncommitted prices to get them, given that doing so would reduce the committed prices of each firm."); see *infra* Part XI.E.

<sup>1151</sup> Rubinfeld Report ¶462

<sup>1152</sup> Rubinfeld Report ¶465



***D. Menveo Market Share and Profitability Does Not Refute Foreclosure***

639. Professor Rubinfeld argues that Menveo could not have been foreclosed because its actual market share was about the same as its but for market share.<sup>1153</sup> This is incorrect. As noted above, even under a raising rivals' cost theory, the correct focus is on output, not share.<sup>1154</sup> But the argument is doubly incorrect where, as here, the theory is instead market division. For any restraint that divides a duopoly market, the two firms' market shares by definition add up to 100% in both the actual and but-for world, so any market division leaves the average firm market share unchanged. One market share may be a bit higher than the but-for world, and one a bit lower, but that is irrelevant to anticompetitive harm. What matters is not but-for market share, but rather but-for prices and output, and my analysis shows that but-for prices would have been lower and that both but-for MCV4 market output *and* but-for Menveo output would have been higher.<sup>1155</sup>

640. Observing merely that Sanofi's but-for market share is about the same as its actual share (both around 80%) ignores crucially the difference in *how Sanofi would achieve that same 80% market share* in the but-for world versus what it did in the actual world. In the actual world, Sanofi was able to maintain a dominant 80% market share *without reducing prices at all from the 100% monopoly level* because the Bundle restrained the majority of Sanofi's private customers from switching to Menveo even when Menveo was priced at a significant discount relative to Menactra. In contrast, in the but-for world, the Bundle would not insulate Sanofi from Menveo competition, and consequently Sanofi could keep that same 80% market share only by vigorously competing on price, which results in but-for Menactra prices that are 38-43% *lower* than actual Menactra prices.<sup>1156</sup>

641. In short, the fact that Sanofi's profit-maximizing Menactra market share is around 80% in both the actual and but-for world does not refute the core problem. The Bundle's restraining effect allowed Sanofi to keep that 80% market share in the actual world without cutting price. In contrast, without the Bundle's restraining effect, Sanofi would have had to cut price significantly to keep that same 80% share in the but-for world.

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<sup>1153</sup> Rubinfeld Report ¶466.

<sup>1154</sup> See *supra* Part VI.A.

<sup>1155</sup> Elhauge Merits Report ¶359-360 & Figures 37-38.

<sup>1156</sup> See Elhauge Merits Report Table 32.

642. Professor Rubinfeld also argues that the fact that Menveo gained market share over time means there could not have been any foreclosure.<sup>1157</sup> Even if one incorrectly thought the correct focus was on market share rather than on prices and market output, this claim contradicts Professor Rubinfeld's own admission elsewhere in his report that the correct baseline is not the past, but the but-for world.<sup>1158</sup> Thus, his argument is internally inconsistent. It also clearly contradicts standard antitrust economics even in cases where a rival is the plaintiff and claims injury based on lost market share.<sup>1159</sup> Any entrant begins with a market share of 0%, so it must by definition grow relative to a past baseline. Professor Rubinfeld's test would thus reach the clearly erroneous conclusion that no conduct could ever foreclose any entrant.

643. The documents cited by Professor Rubinfeld do not indicate whether Novartis was successful compared to what would have happened in the but-for world absent the foreclosing effects of Sanofi's Bundle. Novartis knew it was entering a foreclosed market, so its evaluation of success was necessarily relative to that baseline expectation.<sup>1160</sup> Numerous Novartis documents, which Professor Rubinfeld ignores, indicate that Novartis believed it would have been even more successful absent the Bundle.<sup>1161</sup> It is again no surprise that Novartis was

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<sup>1157</sup> Rubinfeld Report ¶¶463-464.

<sup>1158</sup> Rubinfeld Report ¶544.

<sup>1159</sup> See XI AREEDA & HOVENKAMP, ANTITRUST LAW ¶1802c (3d ed. 2011) ("suppose an established manufacturer has long held a dominant position but is starting to lose market share to an aggressive young rival. A set of strategically planned exclusive-dealing contracts may slow the rival's expansion by requiring it to develop alternative outlets for its product, or rely at least temporarily on inferior or more expensive outlets. Consumer injury results from the delay that the dominant firm imposes on the smaller rival's growth"); III AREEDA & HOVENKAMP, ANTITRUST LAW ¶ 651 (3d ed. 2006) (antitrust plaintiffs can prevail when they have "both grown their market shares and earned high profits even through the period that the exclusionary practices were occurring.").

<sup>1160</sup>

<sup>1161</sup>

successful relative to this expectation given Sanofi's strategy of using the Bundle to anticompetitively divide the MCV4 market.

644. In his numerical assessment of Menveo's success, Professor Rubinfeld also overstates Menveo's success by exploiting the high variance in IMS DDD data to cherry pick a month with abnormally high Menveo share. Professor Rubinfeld's Exhibit 6 demonstrates that the 26% monthly market share for Menveo in December 2011 is much higher than any other month near that point in time. The average share according to his Exhibit in the six months prior to December 2011 is 18% and the average share in the six months following is 20%.<sup>1162</sup> The anomalous December 2011 is driven by the IMS DDD data for Menveo's sales that month, which are 88% higher than they were the previous month, and 315% higher than they were the following month. In his calculation of annual market shares, which is less volatile than the monthly shares, Menveo never reaches a market share as high as the December 2011 share.<sup>1163</sup>

645. Finally, Professor Rubinfeld argues that Menveo could not have been foreclosed because it was profitable and would have been less profitable in the but-for world.<sup>1164</sup> This argument is erroneous. Anticompetitive conduct that inflates prices necessarily results in higher profits and absent the anticompetitive conduct firms will therefore be less profitable. Nothing in the theory of market division requires that the market division lower rival profits or leave the rival unprofitable. Instead, market divisions raise prices for all firms and thus generally increase profits for all firms, as I found. Indeed, if the market division did not raise prices and profit margins, then it would not cause any anticompetitive harm. His argument thus amounts to an unscientific Catch-22 because it would cause him to conclude that a Bundle that divides a market by foreclosing half of it is not anticompetitive regardless of whether it raises or lowers prices, which is clearly wrong. If the market division leads to higher prices and reduced output, as I have found, then it is clearly anticompetitive under standard economic analysis.

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<sup>1162</sup> Rubinfeld Exhibit 6.

<sup>1163</sup> Rubinfeld Exhibit 5.

<sup>1164</sup> Rubinfeld Report Section ¶¶465-466.

***E. Menactra's Claimed Product Advantages Do Not Refute Foreclosure***

646. Professor Rubinfeld argues that Menactra has many advantages over Menveo.<sup>1165</sup> These advantages reinforce my conclusion in Section I that Sanofi possessed market power, even though Professor Rubinfeld ignored all these advantages in his assessment of the extent of Sanofi's market power.<sup>1166</sup> He also ignores the reality that Menveo had advantages for some customers.<sup>1167</sup> The fact that a firm has market advantages which make most customers prefer its product does not make it impossible for a firm to anticompetitively divide the market by foreclosing half of it. Quite to the contrary, it gives the firm market power to engage in such anticompetitive foreclosure and market division. Menactra's advantages therefore in no way refute the anticompetitive effects Sanofi's Bundle caused by dividing the market. To the contrary, the extent to which customers prefer Menactra or Menveo is already fully accounted for in my differentiated Bertrand model, as Professor Rubinfeld himself acknowledges.<sup>1168</sup>

647. While Menactra's advantages make it preferable to some customers, Menveo also has certain advantages which make it preferable to other customers. Professor Rubinfeld ignores these advantages for Menveo, even though some of them directly parallel advantages he noted for Menactra. For example, Professor Rubinfeld notes that at one point in time Menactra had a broader age indication than Menveo as an advantage, but omits that at another point in time, starting in August 2013, Menveo had a broader age indication.<sup>1169</sup> His discussion of reconstitution is similarly one-sided. As I noted in my merits report, reconstitution has advantages and disadvantages.<sup>1170</sup> While some physicians prefer to avoid reconstitution, the tradeoff is that requiring reconstitution prolongs shelf-life from 18 months for Menactra to 36 months for Menveo, which physicians view as an

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<sup>1165</sup> Rubinfeld Report Section VIII.C.3 ¶¶468-480

<sup>1166</sup> Rubinfeld Report Section IV ¶¶98-140. He also ignores the reality that Menveo had advantages for some customers. Elhauge Merits Report ¶¶ 259-60.

<sup>1167</sup> Elhauge Merits Report ¶¶ 259-60.

<sup>1168</sup> Rubinfeld Report ¶480

<sup>1169</sup> Rubinfeld Report ¶473; Menveo August 1, 2013 Approval Letter. Available at: <http://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm363785.htm>. Moreover, not all physicians have patient populations in the relevant range of ages, so when Menactra did have temporary advantages in age indications, that would not affect all physicians equally.

<sup>1170</sup> Elhauge Merits Report ¶216 ("The disadvantage of reconstitution is that it takes about 30 seconds; the advantage is it means the vaccine has a longer shelf life.").

advantage for Menveo.<sup>1171</sup> Professor Rubinfeld presents only one side of this tradeoff. The omission of these advantages for Menveo is significant, because they indicate that the MCV4 market is in fact differentiated, with some customers preferring Menactra and some preferring Menveo because different customers value each vaccine's advantages differently. The fact that the MCV4 market is differentiated only reinforces the market division caused by Sanofi's Bundle and explains why Menveo had sales despite Sanofi's Bundle.

648. One of the advantages Professor Rubinfeld asserts for Menactra is that "physicians prefer to source vaccines from as few suppliers as possible."<sup>1172</sup> Professor Rubinfeld provides no evidence to support this statement, and the evidence he presented in his market definition section cuts against any inference that customers prefer to buy vaccines from the fewest number of manufacturers. As I showed in Section I, his own evidence indicates that, before 2015, GSK sold more vaccines than any other vaccine manufacturer, despite the fact that using GSK vaccines during this period necessarily required purchasing from more than the minimum number of manufacturers due to its lack of a MCV4 vaccine.

649. Professor Rubinfeld's argument that some physicians use a vaccine inventory management system does not indicate any preference to source from a single supplier.<sup>1173</sup> First, Professor Rubinfeld provides no evidence regarding the number of buyers using this inventory management system. Second, buyers could get inventory management regardless of whether or not they rely on a single supplier. Professor Rubinfeld also ignores that relying on only one vaccine supplier has the disadvantage of making physicians more vulnerable to shortages if the supplier has any problems.

#### ***F. The Bundle Foreclosed a Substantial Share of the MCV4 Market***

650. In my opening merits report, I showed that the Bundle foreclosed 53-63% of the private MCV4 market and 40-52% of the MCV4 market as a whole, depending on the year and whether one assumed that Kaiser was foreclosed.<sup>1174</sup> These are high foreclosure shares, and they confirm that the Bundle covered a significant portion of the MCV4 market and thus could significantly distort

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<sup>1171</sup> [REDACTED]

<sup>1172</sup> Rubinfeld Report ¶479.

<sup>1173</sup> Rubinfeld Report ¶479.

<sup>1174</sup> Elhauge Merits Report Tables 12-13 (Corrected).



competition between Menactra and Menveo by dividing the MCV4 market. None of Professor Rubinfeld's critiques of my foreclosure share analysis is valid.

651. **a. Professor Rubinfeld's Inaccurate Exhibit 26-1.** Professor Rubinfeld begins his foreclosure share analysis by inaccurately claiming "Professor Elhauge concedes that numerous categories of purchases were not foreclosed... Exhibit 26-1 shows that these categories account for a large share of total MCV4 purchases."<sup>1175</sup> This is plainly false. His Exhibit 26-1 actually just indicates that private Menactra sales to Sanofi PBG members constituted 13.8% of MCV4 sales. That does not establish that the categories that I treated as foreclosed are only 13.8% of the market because many of the other categories in Professor Rubinfeld's Exhibit 26-1 also include customers that I correctly treated as foreclosed (or potentially foreclosed). In particular, I treated the following as foreclosed (or potentially foreclosed in the case of Kaiser), even though his Exhibit 26-1 claims that I did not: (a) customers foreclosed by the 4-Product system agreements; (b) customers foreclosed by Sanofi's contract with Atlantic Health Partners (AHP); (c) the possible foreclosure of Kaiser; and (d) the foreclosure of VFC doses at providers whose private MCV4 purchase decisions were restrained. I will also show next that Professor Rubinfeld's own claim that these customers were not foreclosed is also inaccurate, but his initial claim that I conceded these customers were not foreclosed is flatly untrue.

652. **b. 4P System Contracts.** Professor Rubinfeld's claim that 4P system customers were not restrained relies on his incorrect assertion that those customers do not face any bundled penalties.<sup>1176</sup> I refuted that above in Part II.B. Systems must pay significantly higher prices for Sanofi Pediatric vaccines if they do not make the Menactra loyalty commitment that is a condition of the Sanofi 4P system agreements or violate that commitment. Customers on Sanofi 4P system agreements are therefore restrained if they buy Sanofi Pediatric vaccines. Indeed, the statistical evidence shows that the 4P system contracts were even more restraining than the PBG contracts because, without the Bundle, the Menveo share would have been 3.8 times higher at 4P systems and 1.8 times higher at PBG members.<sup>1177</sup>

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<sup>1175</sup> Rubinfeld Report ¶¶484-85 ("Professor Elhauge concedes that numerous categories of purchases were not foreclosed... Exhibit 26-1 shows that these categories account for a large share of total MCV4 purchases.").

<sup>1176</sup> Rubinfeld Report ¶494.

<sup>1177</sup> See Elhauge Merits Report ¶¶208-09.

653. **c. Atlantic Health Partners.** Professor Rubinfeld also repeats his incorrect claim that Sanofi's contacts and conduct did not cause AHP members to face bundled penalties.<sup>1178</sup> I explained that is wrong above in Part II.A.

654. **d. Kaiser.** I explained in my opening merits report that it was unclear whether or not Sanofi's contract with Kaiser was subject to the Bundle.<sup>1179</sup> I therefore calculated the foreclosed share of the MCV4 market under the alternative assumptions that: (a) Kaiser was foreclosed, and (b) Kaiser was not foreclosed. Either way, the foreclosure shares were substantial.<sup>1180</sup> Professor Rubinfeld claims to the contrary that Kaiser's contract with Sanofi was definitely not bundled.<sup>1181</sup> The evidence does not support his assertion.

655. The contract Kaiser signed with Sanofi effective July 1, 2009 to September 30, 2012 required Kaiser to meet a "Minimum Annual Dose Commitment" for Menactra that was designed to be equivalent to a 100% market share requirement.<sup>1182</sup> Professor Rubinfeld does not dispute this. Section 3.6 of this Kaiser-Sanofi agreement explicitly states that if Kaiser "fails to meet its annual dose commitment on one or more of the Committed Products during any year of the term of this Agreement, Seller [Sanofi] at its option, may terminate the Agreement, in whole or with respect to such Committed Product(s)."<sup>1183</sup> This clause means that, if Kaiser broke its commitment on Menactra due to purchasing too much Menveo, Sanofi could terminate the entire agreement and raise the prices of its Pediatric vaccines to Kaiser.

656. Professor Rubinfeld argues that this Sanofi-Kaiser contract is not bundled because section 3.5 states "If this Agreement is for a single source Product, and at any time the Product becomes a multi-source product, the Program [Kaiser], at its option, may reopen the negotiation of the price of the Product or terminate the Agreement with respect to said Product."<sup>1184</sup> Professor Rubinfeld claims that this clause "suggests that once Novartis brought Menveo to the market, Kaiser could open the bidding for the supply of its MCV4 vaccine on a single-

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<sup>1178</sup> Rubinfeld Report ¶494.

<sup>1179</sup> Elhauge Merits Report ¶¶221-224.

<sup>1180</sup> Elhauge Merits Report Tables 12-13.

<sup>1181</sup> Rubinfeld Report ¶489-493.

<sup>1182</sup> Elhauge Merits Report ¶222, citing SP 00086608 at SP 00086611.

<sup>1183</sup> Elhauge Merits Report ¶222, citing SP 00086608 at SP 00086609.

<sup>1184</sup> Rubinfeld Report ¶492, citing SP 00086608-12 at 09.

product basis without jeopardizing its price on the Sanofi pediatric products included in the contract.”<sup>1185</sup> But section 3.5, which merely allows Kaiser to *renegotiate Menactra’s price* if Menveo entered, does not negate section 3.6, which allows Sanofi to terminate the entire agreement and increase its Pediatric prices to Kaiser if Kaiser buys Menveo.<sup>1186</sup> Given this potential bundled penalty, Sanofi would not need to agree to a lower renegotiated Menactra price upon Menveo entry to keep Kaiser’s business, just like Sanofi opted not to grant individualized discounts to restrained customers in response to Menveo entry.<sup>1187</sup>

657. Professor Rubinfeld also ignores the fact that Kaiser entered into a new bundled contract with Sanofi in 2012, which allowed Sanofi to terminate the entire agreement (and thus raise prices for its Pediatric vaccines) if Kaiser did not purchase an amount of Menactra roughly equal to 80% of its total MCV4 demand.<sup>1188</sup>

658. Professor Rubinfeld asserts that Kaiser’s contract with Sanofi was not bundled because one Novartis employee stated that a Kaiser employee told them the reason they lost the bid was that “they already have a lower price on Menactra, it was not a bundle deal” and another testified that Novartis lost the Kaiser bid to Sanofi “based on MCV4 price,” not “because of any alleged bundling.”<sup>1189</sup> However, Novartis employees did not have access to Sanofi’s contract with Kaiser and therefore did not know whether it includes bundled terms. This same document indicates that if Kaiser were buying more than one product, then Novartis was not likely to beat the package, and Kaiser did buy more than one product.<sup>1190</sup> Moreover, while this document indicates that Kaiser was telling

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<sup>1185</sup> Rubinfeld Report ¶492.

<sup>1186</sup> Although Section 3.5 gave Kaiser the option to “terminate the Agreement with respect to” Menactra when Menveo entered, that would trigger Section 3.6 of the agreement, which allows Sanofi to terminate the entire agreement if Kaiser “fails to meet its annual dose commitment on one or more of the Committed Products” because Menactra is a “Committed Product.” SP 00086608 at SP 00086609.

<sup>1187</sup> See *supra* Part VIIIA.4, citing, for example, SP 00827165 at SP 00827168 (stating that Sanofi should considering resorting to matching a Novartis price cut only if the Bundle did not deter the customer from switching to Menveo).

<sup>1188</sup> Elhauge Merits Report ¶223.

<sup>1189</sup> <sup>1189</sup> Rubinfeld Report ¶489 & n. 600.

<sup>1190</sup>

Novartis it was not rejected because of a bundle but because the Menactra price was lower, other evidence casts doubt on that explanation. [REDACTED]

[REDACTED].<sup>1191</sup> Kaiser nonetheless continued to purchase only Menactra,<sup>1192</sup> saying now that the decision was because of clinician preference.<sup>1193</sup> The changing stories suggest that perhaps Kaiser was did not want to tell a bidder it was rejected because of a Bundle.

659. Professor Rubinfeld also argues fallaciously that, even if Sanofi's contract with Kaiser includes bundling conditions, it is not foreclosing because Sanofi's contract with Kaiser was negotiated.<sup>1194</sup> Professor Rubinfeld cites no support for the claim that the negotiation of a contract eliminates its ability to cause anticompetitive harm. Relatedly, Professor Rubinfeld's *ipse dixit* claim that "if Kaiser wanted different terms it could have negotiated them"<sup>1195</sup> contradicts the evidence in this case showing that Sanofi had significantly more bargaining power than Kaiser. Professor Rubinfeld admits that Sanofi has had at least a dominant 75-94% share of the MCV4 market since Menveo entry,<sup>1196</sup> whereas his own Exhibit 26-1 shows that Kaiser constitutes only 3% of the MCV4 market. Moreover, if Kaiser could not reach an agreement with Sanofi it could still face bundled penalties under Sanofi's standard programs.

660. e. VFC. I explained in my opening merits report that Sanofi's Bundle will restrain a medical provider's choice of MCV4 vaccine for their VFC doses if: (a) the Bundle restrains that medical provider's choice of MCV4 vaccine for their private (non-VFC) patients; and (b) the medical provider has a choice about which MCV4 vaccine to use for their VFC dose.<sup>1197</sup> Restraining a medical provider's choice of private MCV4 vaccine restrains their choice of VFC MCV4 vaccine because the evidence shows that medical providers prefer to use a single MCV4 vaccine for both their private and VFC doses. [REDACTED]

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[REDACTED]  
[REDACTED]  
<sup>1191</sup> [REDACTED]

<sup>1192</sup> "295 Kaiser Prices vs GPO Access prices.xls".

<sup>1193</sup> [REDACTED]

<sup>1194</sup> Rubinfeld Report ¶493.

<sup>1195</sup> Rubinfeld Report ¶493.

<sup>1196</sup> Rubinfeld Exhibit 6.

<sup>1197</sup> Elhauge Merits Report ¶225.

[REDACTED]  
[REDACTED]<sup>1198</sup> I further noted that “Numerous Sanofi documents acknowledge that doctors usually use the same MCV4 vaccine for their VFC and non-VFC uses, and that a provider’s decision about which MCV4 vaccine to buy privately generally determines which it will obtain from the VFC program[, and that] Novartis documents likewise acknowledge that medical providers prefer to use the same vaccine for their VFC and non-VFC patients.”<sup>1199</sup>

661. Professor Rubinfeld does not appear to dispute that medical providers generally prefer to standardize on a single MCV4 vaccine for both their private and VFC uses. Indeed, the evidence on this point is overwhelming: I cited at least twelve contemporaneous documents on this point, many of which included unequivocal statements about medical providers’ strong preference for standardization, such as: (a) “offices that choose Menveo on the private side will choose the same for public;”<sup>1200</sup> (b) “private provider preference drives public brand usage;”<sup>1201</sup> (c) “by linking [a customer to a Bundled contract, Sanofi is] able to block Novartis from influencing [the customer] to try Menveo from vfc;”<sup>1202</sup> and (d) [REDACTED]

[REDACTED]<sup>1203</sup>  
662. In response to this overwhelming evidence, Professor Rubinfeld provides one anecdote of what appears to be an idiosyncratic doctor and three irrelevant documents. His one anecdote is of a doctor that purportedly bought Menactra for his private doses but Menveo for his VFC doses because he “doesn’t want the Novartis [sales] rep to lose his job because he has a family to feed.”<sup>1204</sup> One anecdote about a doctor with a soft spot for sales representatives does not

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<sup>1198</sup> Elhauge Merits Report ¶226, citing [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

<sup>1199</sup> Elhauge Merits Report ¶226; citing SP 00157105 at SP 00157142; SP 00110446; SP 00282905 at SP 00282908; SA 002700082 at -95; SP 00844790 at SP 00844834; SP 01575370 at SP 01575370; SP 00347662 at 64; SP 01973710; [REDACTED]  
[REDACTED]

<sup>1200</sup> SP 00282905 at SP 00282908. (cited previously at Elhauge Merits Report ¶226).

<sup>1201</sup> SP 00844790 at SP 00844834. (cited previously at Elhauge Merits Report ¶226).

<sup>1202</sup> SP 01973710. (cited previously at Elhauge Merits Report ¶226).

<sup>1203</sup> [REDACTED]

<sup>1204</sup> Rubinfeld Report ¶499, citing SP 00264733-41 at 36.



refute the many Sanofi and Novartis contemporaneous documents acknowledging that medical providers overwhelmingly prefer to standardize on a single MCV4 vaccine.

663. The other three documents Professor Rubinfeld cites on this point do not support his argument. The first purportedly states that “most health systems don’t care what their providers order” through the VFC.<sup>1205</sup> But, asserting that the health system *administration* does not care if medical providers use the same MCV4 vaccine for their private and public patients does not refute the overwhelming evidence that the *medical providers* do care, and thus that a medical provider that is forced to buy Menactra for its private vaccines because of its health system’s contract will also be more likely to use Menactra for their VFC doses. The second document notes only that “Novartis has been making a strong push on the public side” for VFC accounts in Florida.<sup>1206</sup> But Novartis *trying* to get doctors to switch their VFC doses to Menveo does not refute the evidence that restrained doctors would generally be unwilling to use Menveo for their VFC doses because: (a) Novartis may be trying to “push” for VFC doses only at unrestrained customers in Florida; and (b) even if Novartis tries to “push” for VFC doses at restrained customers, Professor Rubinfeld’s cited document does not state they are succeeding. [REDACTED]

[REDACTED]<sup>1207</sup> Even if accepted as true, the fact that doctors stock a single vaccine of a given brand about half the time does not refute the fact that doctors *prefer to standardize*—even doctors that prefer to standardize on a single vaccine, all else equal, will not for standardize 100% on a particular vaccine for all vaccine types because in some situations one brand of a given vaccine is more appropriate for one set of patients while another brand is more appropriate for a different set of patients.<sup>1208</sup>

664. In any event, foreclosure shares in this case are substantial regardless of whether one accepts Professor Rubinfeld’s claim that only half of medical providers prefer to standardize on a single MCV4 vaccine for their private and

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<sup>1205</sup> Rubinfeld Report ¶499, citing SP 00010064-65 at 64.

<sup>1206</sup> SP 00009783-85 at 84.

<sup>1207</sup> Rubinfeld Report ¶544, citing [REDACTED]

<sup>1208</sup> For example, within a given vaccine type, some brands include latex while others do not. See <http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latex-table.pdf>. This means that even if doctors prefer one particular brand that contains latex, they may stock some of another brand of that does not contain latex for their patients who have latex allergies.

VFC doses.<sup>1209</sup> Whether the VFC segment is foreclosed *at all* is irrelevant to the 53-63% foreclosure share of the private segment, which is the most relevant foreclosure measure here because the theory of the case is that Sanofi’s bundle has anticompetitively divided the private segment of the MCV4 market. Even if one assumes that only 50% of the VFC sales to restrained customers in Choice, Non-Universal states are restrained, then the foreclosed share of the MCV4 market as a whole is 34-40% if one assumes Kaiser is restrained,<sup>1210</sup> and 30-34% if one assumes Kaiser is unrestrained.<sup>1211</sup> Professor Rubinfeld’s contrary claim that the MCV4 market foreclosure shares are only 20-21% if one assumes “50% net spillover” for the VFC segment relies on his incorrect assumptions that 4-P system and AHP sales are not restrained.<sup>1212</sup>

665. Professor Rubinfeld also incorrectly states that I “ignore evidence indicating that . . . the decision to purchase a vaccine for the public side can also influence private purchasing decisions.”<sup>1213</sup> To the contrary, I explicitly acknowledged what he calls this “reverse spillover” effect in my Menveo share regression by including a control variable for each state’s VFC “choice” status, and my Menveo share regression showed that the Bundle has a restraining effect above and beyond this “reverse spillover effect.”<sup>1214</sup> Professor Rubinfeld also ignores the fact that in choice states, there is no financial advantage to physicians for taking Menveo versus Menactra for VFC sales, thus their private purchases will drive their decisions. Further, Professor Rubinfeld does not even appear to claim that one should account for any alleged “reverse spillover” effect in any way when calculating foreclosure shares. It is thus unclear why he even brings up the point.

666. **f. Uninformed Lay Testimony About When a Firm Has a “Fair Chance to Compete” or is “Foreclosed” from Competition Does Not Bear on Economic Calculations of Foreclosure Shares.** Professor Rubinfeld erroneously claims that Novartis was not foreclosed from Kaiser because a Novartis employee testified that Novartis was “not substantially foreclosed from competing for Kaiser’s business” and had a “fair chance to compete” for VFC sales.<sup>1215</sup> Professor

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<sup>1209</sup> Rubinfeld Report ¶504 (Professor Rubinfeld assuming that “50% of restricted private purchases lead indirectly to restricted public purchases.”).

<sup>1210</sup> “MRebut293 mcv4 restrained if kaiser restrained (VFC 50).csv”.

<sup>1211</sup> “MRebut220 mcv4 restrained if kaiser unrestrained (VFC 50).csv”.

<sup>1212</sup> Rubinfeld Exhibit 27.

<sup>1213</sup> Rubinfeld Report ¶500.

<sup>1214</sup> Elhauge Merits Report Part V.E.4.

<sup>1215</sup> Rubinfeld Report ¶487.

Rubinfeld's methodology of relying on uninformed layperson definitions of when a firm is foreclosed in the technical antitrust sense is wrong for two reasons.

667. *First*, a layperson's belief about when a firm is "foreclosed" does not accurately indicate when a firm is actually foreclosed in the relevant economic sense because the technical antitrust definition of "foreclosure" differs from the lay definition. [REDACTED]

[REDACTED]

[REDACTED].<sup>1216</sup> The economic literature recognizes that economists should not rely on layperson definitions of technical antitrust terms to form their conclusions because lay definitions of these terms generally differ from the technical economic definition.<sup>1217</sup> [REDACTED]

[REDACTED]

[REDACTED]<sup>1218</sup> [REDACTED]

[REDACTED]

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<sup>1216</sup> Rubinfeld Report ¶487, [REDACTED]

[REDACTED]

<sup>1217</sup> This issue comes up most often when laypeople testify about what products they believe are in the same "market." Jonathan Baker, *Market Definition: An Analytical Overview*: 74 ANTITRUST L.J. 129, 139 (2007) ("There is no reason to expect that the concept of market employed by business executives when discussing issues of business strategy or marketing, whether it is in testimony or documents prepared for business purposes, would be the same as the concept of an 'antitrust market' or 'relevant market' defined for the purpose of antitrust analysis."). The technical economic definition of a relevant market differs from the layperson definition of a "market," just like how the technical economic of "foreclosure" differs from the layperson definition of that word.

<sup>1218</sup> [REDACTED]

[REDACTED]



by a restraining agreement.<sup>1222</sup> Whether prices are below cost are irrelevant to foreclosure shares or to the relevant anticompetitive harm.

### ***H. Menveo Share Regression Supports Finding of Foreclosure***

671. Professor Rubinfeld also repeats his incorrectly claim that my Menveo share regression indicates that the Bundle reduced Menveo's share by at most 2 percentage points.<sup>1223</sup> As I explained above in Part V.E.6, Professor Rubinfeld is wrong because: (a) he is ignoring that the Menveo share regression is a conservative underestimate of the Bundle's full effect; (b) Professor Rubinfeld fails to properly account for the "reverse natural link" when interpreting my regression results; (c) my Menveo share regression actually indicates that Menveo would have had *at least* a 191% higher share among private restrained customers but-for the Bundle (assuming all else stayed the same). My Menveo share regression thus indicates a substantial restraining effect, despite its conservatism, and thus supports all of the other types of evidence confirming that Sanofi's Bundle significantly restrained/foreclosed Menveo sales.

## **VII. THE LACK OF ANY MENACTRA PRICE DECREASE FOLLOWING MENVEO ENTRY INDICATES THE BUNDLE ANTICOMPETITIVELY INFLATED PRICES**

672. In my opening merits report I showed that the characteristics of the MCV4 market indicate that, absent an anticompetitive restraint (such as the Bundle), Menveo's entry in March 2010 would have caused Sanofi to reduce its Menactra prices from pre-entry levels.<sup>1224</sup> I did not merely assume that entry into a 100% monopoly market would always reduce incumbent prices from pre-entry levels. Instead, I identified five economic characteristics of the MCV4 market that meant that entry of Novartis's Menveo into that 100% monopoly market would have reduced MCV4 prices from pre-entry levels absent the challenged anticompetitive conduct:

- (1) Sanofi's marginal costs were decreasing when Menveo entered.
- (2) Demand for MCV4 was decreasing when Menveo entered.
- (3) There was no coordination on class member prices, let alone perfect coordination.

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<sup>1222</sup> *Supra* note 1124.

<sup>1223</sup> Rubinfeld Report ¶539.

<sup>1224</sup> Elhauge Merits Report Part VI.



- (4) The MCV4 market was not segmented between price sensitive providers and price insensitive customers in the way pharmaceutical markets often are after generic entry.
- (5) Menactra and Menveo are differentiated products but reasonably interchangeable so as to be in same, not separate, markets.<sup>1225</sup>

673. Accordingly, in the but-for world—i.e., the world that would have existed but for the Bundle—Menactra’s prices would have decreased from pre-entry levels. In other words, *but-for* post-entry prices would have been *lower* than pre-entry prices. However, Menactra’s *actual* post-entry prices were *higher* than pre-entry prices.<sup>1226</sup> This, by itself, necessarily proves that Menactra’s *actual* post-entry price was higher than *but-for* post-entry prices—in other words, that Menactra’s price was anticompetitively inflated above but-for levels. Part IX of Professor Rubinfeld’s report discusses my analysis of this issue, but fails to refute any of it. Professor Rubinfeld does not dispute either (1) that given actual market characteristics, Menactra prices should have declined after Menveo entry absent an anticompetitive restraint, or (2) that Menactra prices in fact did not decline after Menveo entry.

***A. Absent Anticompetitive Conduct, Menveo Entry Would Have Reduced Menactra Prices From Pre-Entry Levels***

674. Professor Rubinfeld incorrectly states that my “analysis is flawed” because “economic theory does not always predict that entry by a competitor will lead to lower incumbent prices.”<sup>1227</sup> But my analysis is not premised on economic theory predicting that competitive entry will *always* lower prices. To the contrary, I explicitly recognized that there are situations in which entry does not reduce incumbent prices, and I showed that none of them applied here: (1) Sanofi’s marginal costs were not increasing when Menveo entered; (2) demand for MCV4 vaccines was not increasing when Menveo entered; (3) Sanofi and Novartis were not coordinating at all, let alone perfectly on 100% monopoly prices; (4) the MCV4 market was not segmented between price sensitive providers and price insensitive customers in the way pharmaceutical markets often are post-generic

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<sup>1225</sup> Elhauge Merits Report Part VI.B.

<sup>1226</sup> Elhauge Merits Report Part VI.A.

<sup>1227</sup> Rubinfeld Report ¶542.

entry; and (5) Menactra and Menveo are differentiated products but reasonably interchangeable so as to be in same, not separate, markets.<sup>1228</sup>

675. In any event, Professor Rubinfeld ultimately concedes that I recognized that there are models or circumstances when entry might not reduce prices and that I offered explanations for why those models or circumstances “are not applicable to the alleged MCV4 market.”<sup>1229</sup> Professor Rubinfeld does not even claim (let alone provide evidence) that any of the models or circumstances where entry might not decrease prices actually apply to this case. Professor Rubinfeld and I both acknowledge that incumbent pharmaceutical manufacturers sometimes increase their prices in response to generic entry.<sup>1230</sup> However, as I explained, the economic literature shows that “the phenomenon of generic entry increasing incumbent brand prices is limited to markets that are segmented between: (a) a larger group of price-*insensitive* retail customers, and (b) a smaller group of price-*sensitive* medical professionals” and that the MCV4 market is not such a market.<sup>1231</sup> Professor Rubinfeld does not dispute this. Similarly, Professor Rubinfeld cites an article by Perloff et al. that concludes that second entry can increase incumbent prices when the entrant is so dissimilar from the incumbent that the entrant is really the first firm in what is, after entry, effectively a separate market.<sup>1232</sup> But I already explained that this theory does not apply here because Menactra and Menveo were not so dissimilar so as to be in different markets.<sup>1233</sup> Again, Professor Rubinfeld does not dispute this. Likewise, as Section C shows, although Professor Rubinfeld quibbles with how much costs and demand were decreasing at the time of Menveo entry, he never denies that they were not increasing, and an increase in costs and demand would be necessary to explain why costs or demand might cause prices to increase after entry.

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<sup>1228</sup> Elhaug Merits Report Part B.1-5.

<sup>1229</sup> Rubinfeld Report ¶542; Elhaug Merits Report ¶¶ 244-249

<sup>1230</sup> Rubinfeld Report ¶542 (noting this theory and that I acknowledged it and showed that it did not apply to this case).

<sup>1231</sup> Elhaug Merits Report ¶246, citing Grabowski & Vernon, *Brand Loyalty, Entry, and Price Competition in Pharmaceuticals after the 1984 Drug Act*, 35 JOURNAL OF LAW AND ECONOMICS 331, 340 (1992).

<sup>1232</sup> Rubinfeld Report ¶542, n. 650, citing Perloff, Jeffrey M., Valerie Y. Suslow, and Paul J. Seguin, “Higher Prices From Entry: Pricing of Brand-Name Drugs,” Working Paper, August 1995.

<sup>1233</sup> Elhaug Merits Report ¶¶248-249.

676. Professor Rubinfeld does observe that prices of incumbent branded food products sometimes increase when a private-label enters the market,<sup>1234</sup> but he does not argue that the reasons why this happens in food markets apply to the MCV4 market. Indeed, the article cited by Professor Rubinfeld acknowledges that “economists usually assume that entry leads to more competition with lower prices.”<sup>1235</sup> This article also describes four reasons why second-entry might increase incumbent prices, and none of them applies here. First, incumbents might increase quality in response to entry, but it is undisputed that Sanofi did not increase the quality of Menactra in response to Menveo entry.<sup>1236</sup> Second, incumbents sometimes decide to increase consumer uncertainty intentionally in order to exploit ignorant customers by selling “virtually the same product under various brand names,”<sup>1237</sup> but Sanofi did not do that here. Third, incumbents sometimes reposition or modify their products to increase product differentiation in response to new entry,<sup>1238</sup> but there is no claim that Sanofi modified Menactra or added new MCV4 products to increase production differentiation in response to Menveo entry. Fourth, this paper cites the Perloff, Seguin, and Suslow paper on extreme product differentiation that I already explained does not apply to this case (which Professor Rubinfeld does not dispute).<sup>1239</sup> In sum, Professor Rubinfeld does not claim (let alone prove) that any of the reasons why incumbent food sellers sometimes increase their prices in response to second-entry apply to this case, and I have affirmatively shown that the reasons the authors of that paper list do not apply to this case.

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<sup>1234</sup> Rubinfeld Report ¶542, citing Ward, Shimshack, Perloff & Harris, *Effects of the Private-Label Invasion in Food Industries*, 84 AMERICAN JOURNAL OF AGRICULTURAL ECONOMICS 961 (2002).

<sup>1235</sup> Ward, Shimshack, Perloff & Harris, *Effects of the Private-Label Invasion in Food Industries*, 84 AMERICAN JOURNAL OF AGRICULTURAL ECONOMICS 961, 963 (2002).

<sup>1236</sup> *Id.* at 963 (“Manufacturers of name-brand products may raise the quality of their goods when faced with private-label entry.”).

<sup>1237</sup> *Id.* at 964 (“By intentionally increasing consumer uncertainty, a firm may be better able to exploit ignorant consumers and earn a higher profit. One way that firms confuse customers is to create “noise” by selling virtually the same product under various brand names. Brand proliferation pays if the cost of producing multiple brands is relatively low and the share of consumers who are willing to buy the higher price product is relatively large.”).

<sup>1238</sup> *Id.* at 964 (“a third theory, product differentiation, provides a more compelling explanation for price increases.”)

<sup>1239</sup> *Id.* at 964 (“Perloff, Seguin and Suslow show whether the price of the existing item rises or falls depends on how close the two products are located.”). I explained that this paper’s theory does not apply to this case in Elhauge Merits Report ¶¶248-249.

677. In my opening merits report, I noted that the CDC, which has extensive experience with vaccine pricing, stated that it was “abnormal” that Menveo entry did not reduce Menactra’s price from the 100% monopoly level.<sup>1240</sup> Professor Rubinfeld points out that, after learning about the “abnormal” lack of a Menactra price decrease, the CDC employee speculated that this abnormal absence of a decrease in price might be due to the way insurance reimbursement works in vaccine markets.<sup>1241</sup> But that does not alter the fact that the absence of a price decrease after entry is abnormal. Further, the speculation of a CDC employee as to the cause of Menactra’s abnormally high prices is not relevant, especially given that this CDC employee did not have access to information on Sanofi’s anticompetitive Bundle, which was the real reason why Menactra’s price remained at or above the 100% monopoly levels that prevailed pre-Menveo entry. Further, this CDC employee’s speculation that insurance reimbursement could explain the lack of a price decrease is economically flawed – there is no reason that insurance payors could not take advantage of new competition from Menveo to bargain for lower rates. Indeed, the fact that the CDC believed that the lack of a Menactra price decrease following Menveo entry was “abnormal” [REDACTED]

[REDACTED]<sup>1242</sup>

678. Professor Rubinfeld points out that a new edition of a textbook written and edited by a Sanofi consultant after the beginning of this litigation now includes a statement that “[i]n general vaccines prices have declined when *more than two* companies have competed in a single vaccine market.”<sup>1243</sup> Although Professor Rubinfeld asserts this is the same as a conclusion that prices do not decline when only two companies compete,<sup>1244</sup> that does not follow. The statement that the textbook can confirm that prices *have* declined when three or more companies compete does not mean the textbook has reached any conclusion about whether prices also decline when two companies compete. If a study found that three or more glasses of wine a day are associated with a lower heart rate, that finding would not mean that drinking two glasses of wine a day did not also lower heart

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<sup>1240</sup> Elhauge Merits Report ¶238, [REDACTED]

<sup>1241</sup> Rubinfeld Report ¶543.

<sup>1242</sup> [REDACTED]

<sup>1243</sup> Rubinfeld Report n. 657, citing PLOTKIN, ORENSTEIN & OFFIT, VACCINES 41 (6<sup>th</sup> ed. 2013). Stanley Plotkin, the editor in chief of this book, works as an advisor for Sanofi Pasteur. See <http://www.nfid.org/awards/plotkin.pdf>.

<sup>1244</sup> Rubinfeld Report ¶543& n.657.

rates. Nor does the cited textbook provide any evidence that vaccine prices have not declined following entry by a second competitor.

679. It is also notable that the previous edition of this textbook, which was written before this litigation began, does not contain this statement.<sup>1245</sup> Moreover, the edition that preceded this litigation noted that usually vaccine “prices *fall* as vaccine products mature,”<sup>1246</sup> which directly contradicts Sanofi’s and Professor Rubinfeld’s claims that vaccine prices naturally have an upward momentum. But this statement that conflicts with Sanofi’s position in this litigation, and the new edition published after this litigation began now states that “prices *stabilize* as products mature.”<sup>1247</sup> This new statement could be accurate if it now implicitly defines a “mature” product market to mean one that has enough entrants to make it fully competitive because, at that point, prices will stabilize at the competitive price level. But the new edition now curiously omits the prior edition’s acknowledgement that vaccine prices fall in earlier stages of maturization from a monopoly market to a competitive one.

680. Even if one assumes that Sanofi’s consultant’s post-litigation statement is credible and meant to assert that vaccine prices do not generally decrease following entry by a second competitor, that would not contradict my analysis, for at least two reasons. First, the lack of price reductions following second-entry in other vaccine markets does not indicate that second-entry does not reduce incumbent vaccine prices in the absence of bundling given Professor Rubinfeld’s admission that bundling is endemic to the vaccine industry.<sup>1248</sup> Second, I show below in Part X that no other vaccine markets can serve as valid yardsticks for how much Menveo entry would reduce Menactra’s price in the absence of bundling, not only because bundling is endemic to the vaccine industry, but also because the vaccine markets that Professor Rubinfeld claims are “most similar” to the MCV4 market actually differ from the MCV4 market in ways that affect how much second-entry will reduce incumbent prices.

681. In sum, I have shown that the characteristics of the MCV4 market mean that, absent an anticompetitive restraint, the introduction of competition from Menveo should have caused Menactra’s prices to decrease relative to pre-entry

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<sup>1245</sup> PLOTKIN, ORENSTEIN & OFFIT, VACCINES (5<sup>th</sup> ed. 2008).

<sup>1246</sup> PLOTKIN, ORENSTEIN & OFFIT, VACCINES 41 (5<sup>th</sup> ed. 2008) (emphasis added).

<sup>1247</sup> PLOTKIN, ORENSTEIN & OFFIT, VACCINES 38 (6<sup>th</sup> ed. 2013) (emphasis added).

<sup>1248</sup> Rubinfeld Report ¶275.



levels, and Professor Rubinfeld does not directly dispute that. Instead, Professor Rubinfeld merely notes that second-entry does not always reduce incumbent prices in situations that even he does not argue apply here.

***B. Menactra Prices Did Not Decrease After Menveo Entry***

682. As the last section showed, the characteristics of the MCV4 market meant that, absent the Bundle, the introduction of competition for the first time in the MCV4 market would have caused Menactra's post-entry but-for price to be lower than pre-entry levels. Accordingly, evidence that Menactra's actual post-entry price either stayed the same or increased relative to pre-entry levels indicates that the Bundle anticompetitively inflated Menactra's post-entry prices. I showed in my opening merits report that Sanofi did *not* reduce Menactra's price relative to pre-entry levels when Menveo entered, but instead generally increased prices.<sup>1249</sup> This shows that Menactra's post-entry prices were anticompetitively inflated. Professor Rubinfeld does not dispute that Sanofi failed to reduce Menactra's price relative to pre-entry levels after Menveo entered.

683. **a. My Entry Analysis Used the Correct But-For Baseline.** Professor Rubinfeld incorrectly claims that I used a past baseline, rather than a but-for baseline.<sup>1250</sup> I am glad that Professor Rubinfeld here acknowledges that the correct baseline is a but-for baseline, not a past baseline, but I would note that this acknowledgement contradicts his claim elsewhere in his report that a past baseline should be used.<sup>1251</sup> Further, his claim that I did not use a but-for baseline in my entry analysis is entirely false and indicates a complete misunderstanding of my entry analysis. Throughout all of my analysis, I correctly used the but-for baseline of prices *without the Bundle*. What my entry analysis showed was that, under the market circumstances in this case, pre-entry prices were a *cap* on but-for post-entry prices. Accordingly, here the fact that actual post-entry prices exceeded pre-entry prices necessarily proved that they must have also exceeded but-for post-entry prices.

684. For example, suppose the pre-entry price were \$100. Suppose further that one knows that the but-for post-entry price would be lower than \$100. That is,

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<sup>1249</sup> Elhauge Merits Report Part VI.A.

<sup>1250</sup> Rubinfeld Report ¶544.

<sup>1251</sup> See Rubinfeld Report ¶541, ¶544 (wrongly using past baseline when arguing that growth in Menveo share over time disproves restraining effect of the Bundle).

one knows that but for the Bundle, the post-entry price would have been lower than \$100. However, the actual post-entry price was higher than \$100. This necessarily means that the actual post-entry price exceeds the but-for post-entry price.

685. This does not mean that I am saying that past pre-entry prices equal but-for prices. Instead, it means that, in the circumstances of this case, whether actual post-entry prices exceeded pre-entry prices provide a very conservative test of whether they exceeded but-for post-entry prices. The test is conservative because the difference between actual post-entry prices and pre-entry prices could be much smaller than the difference between actual post-entry prices and but-for prices, given that pre-entry prices are just a cap on but-for prices. For example, in the illustration above, we know that the but-for post-entry price must be lower than \$100, but it could be a lot lower, like \$50. Thus, asking whether the actual post-entry price exceeded \$100 is a very conservative test because anticompetitive impact exists as long as the post-entry price exceeds \$50. My entry analysis simply shows that, without getting into all the complications of exactly what the but-for price was, we know that because the actual post-entry price exceeded the pre-entry price it must have exceeded the but-for post-entry price to at least some degree.

686. To generalize, as explained above in Section A, Professor Rubinfeld does not actually dispute my analysis that, given actual market circumstances, post-entry Menactra prices should have been lower than pre-entry Menactra prices absent the Bundle. Accordingly, we know  $\text{Pre-Entry Prices} > \text{But-for Post-Entry Prices}$ . Further, he does not dispute, as shown in Section C, that  $\text{Actual Post-Entry Menactra prices} \geq \text{Pre-entry Menactra prices}$ . Accordingly, we know that  $\text{Actual Post-Entry Prices} \geq \text{Pre-Entry Prices}$ . Combining these two logical propositions together means that  $\text{Actual Post-Entry Menactra prices} \geq \text{But-for Post-Entry Prices}$ . That is,  $\text{Actual Post-Entry Prices} \geq \text{Pre-Entry Prices} > \text{But-for Post-Entry Prices}$ . Thus, it logically follows that proof that  $\text{Actual Post-Entry Menactra prices} \geq \text{Pre-Entry Menactra prices}$  provides a conservative test showing that the Bundle anticompetitively inflated Menactra's price.

687. **b. Professor Rubinfeld Uses the Demonstrably Wrong But-For Baseline.** Although Professor Rubinfeld acknowledges that the correct baseline is a but-for baseline, he makes a fundamental economic error by using the *wrong* but-for baseline. Professor Rubinfeld incorrectly claims that the relevant question “is whether post-entry Menactra prices were lower than they would have been *but for*

*Menveo entry.*”<sup>1252</sup> That is plainly incorrect. The Plaintiffs allege that what was illegal was Sanofi’s *Bundle*, not the entry of Menveo. Menveo enters in both the actual and but-for worlds. Accordingly, the relevant question is whether post-entry Menactra prices were lower (or higher) than they would have been *but for Sanofi’s Bundle*—i.e., *with* Menveo entry but *without* Sanofi’s Bundle.

688. The economic literature is quite clear that the right but-for baseline is what would have happened without “but for the antitrust violation.”<sup>1253</sup> Indeed, in his academic writing on antitrust damages, Professor Rubinfeld is himself quite clear that the correct but-for baseline for assessing anticompetitive effects, impact and damages in an antitrust case is what would have happened “but for the wrongful behavior,” which he states is the same as what would have prevailed “had there been no wrongful behavior.”<sup>1254</sup> Further, in his academic writing on bundling, he is quite clear that the but-for baseline is what would have happened in a but-for world without the bundle.<sup>1255</sup> Professor Rubinfeld’s claim here that the right baseline is instead what prices would have been but for Menveo entry thus reflects a flawed economic methodology that is rejected by the economic literature and his own academic writing.

689. The correct economic question in assessing the effects of the Bundle is thus *not* whether Menveo entry caused Sanofi to price lower than it would have

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<sup>1252</sup> Rubinfeld Report ¶544.

<sup>1253</sup> AREEDA & HOVENKAMP, IIA ANTITRUST LAW ¶ 394 (3d ed. 2007) (to determine injury, “the plaintiff’s actual profits are compared to what they would have been *but for the antitrust violation*”) (emphasis added).

<sup>1254</sup> Rubinfeld, *Antitrust Damages*, in *Research Handbook on the Economics of Antitrust Law* 378, 380 (ed. Elhauge 2013)(“Under the yardstick approach, damages are measured by obtaining a “but-for price” from a market (the “comparable market”) that closely approximates the market in which the violation occurred.... Ideally, the comparable market product should reflect the same degree of competition, the same costs, and the same demand conditions that would have prevailed in the market at issue *had there been no wrongful behavior*”) (emphasis added); *id.* at 381 (likewise saying that for the benchmark approach, “As with the yardstick approach, it is essential that the non-impact period be as similar as possible to the impact period. This requires that one take into account any cost, demand, or competitive differences between the non-impact behavior and the impact period, *but for the wrongful behavior.*”)(emphasis added).

<sup>1255</sup> Aaron Edlin & Daniel Rubinfeld, *Exclusion or Efficient Pricing?*, 72 ANTITRUST L.J. 119, 154 (2004) (“if one is to attribute procompetitive benefits to the *bundling associated with the Big Deal*, it is important to evaluate the extent to which those benefits would be achieved *in a but-for world without the Big Deal*”)(emphasis added).

priced *without Menveo entry*. No one is claiming that Menveo's entry was illegal, so the issue of whether Menactra's post-entry prices were lower than they would have been without Menveo entry is irrelevant. Instead, the correct economic question here is whether, during the post-entry period, the Bundle caused Sanofi to price higher than it would have but-for the Bundle: that is, higher than Sanofi would have priced *with Menveo entry and no Bundle*. In short, the correct but-for baseline is not *without entry*, but rather *with entry and no Bundle*.

690. Professor Rubinfeld's use of the wrong but-for baseline erroneously inflates his but-for prices. The reason is that, without Menveo entry, Sanofi would have had 100% monopoly power, and he assumes Sanofi would have exploited that power by continually raising prices above pre-entry levels.<sup>1256</sup> Thus, his incorrect but-for baseline—what post-March 2010 prices would have been without Menveo entry—results in incorrect but-for prices that are far above the pre-entry prices that (as I showed above) are a conservative cap on true but-for prices. In other words, he inflates but-for prices hugely by defining the but-for world not as a world with competition and no anticompetitive Bundle, but rather as a world where Sanofi has no competitor at all and thus has untrammelled power to raise prices.

691. Not only does Professor Rubinfeld articulate a clearly flawed economic methodology rejected by that his own academic writing, but also he repeatedly employs that flawed methodology in his analysis of anticompetitive impact. He does so by repeatedly attempting to disprove anticompetitive impact by showing that Menactra's post-entry prices were lower than its post-entry prices would have been *without Menveo entry*.

692. For example, Professor Rubinfeld argues that anticompetitive impact is negated by evidence that, for some 4P system customers, "Sanofi's decision to forego a price increase in response to competition led to prices below levels that would have been reached *but-for Menveo*."<sup>1257</sup> But it does not matter whether Menactra post-entry prices were lower than they would have been without any Menveo entry at all. The correct economic question in assessing the effects of the Bundle is whether actual post-entry prices were higher than but-for post-entry prices would have been with Menveo entry and no Bundle. Thus, even if Menveo entry caused Sanofi to rarely, but sometimes, offer price discounts from anticompetitively-inflated prices or to forgo further increases from those inflated

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<sup>1256</sup> Rubinfeld Report ¶545-553.

<sup>1257</sup> Rubinfeld Report ¶545 (emphasis added).

prices, that would not at all show that Sanofi's post-entry prices were lower that they would have with Menveo entry and no Bundle. Accordingly, even if assumed true, such facts cannot show that *the Bundle* had no effect on prices.

693. Professor Rubinfeld again uses the wrong but-for baseline of a world without Menveo entry when he claims that anticompetitive impact is disproven by evidence that "Sanofi also offered price concessions to some PBGs *as a result of Menveo entry*."<sup>1258</sup> Whether post-entry prices were lower as a result of Menveo entry than they would have been without such entry is not the issue. The correct economic question is whether post-entry prices were higher than they would have been with that entry but without the Bundle. Likewise, Professor Rubinfeld uses his economically flawed but-for baseline when he claims that anticompetitive impact is negated by his claim that "analysis of Menactra prices more broadly demonstrates that Sanofi *increased prices more slowly after Menveo entry than it did prior to Menveo entry*."<sup>1259</sup> Even if it were true that Menactra's post-entry prices increased more slowly because of Menveo entry, that could not disprove the effect of the Bundle because Menveo would have entered in the actual and but-for worlds. The correct economic question is whether post-entry prices were higher in the actual world (with entry and the Bundle) than prices would have been in the but-for world (with entry but without the Bundle).

694. The use of the wrong but-for baseline is further repeated throughout Professor Rubinfeld's pricing analysis.<sup>1260</sup> Indeed, he summarizes this section by claiming that it shows that anticompetitive impact is disproven by "evidence that Sanofi offered lower Menactra prices to its contract customers than it would have *but-for Menveo entry*."<sup>1261</sup> He likewise says that what this section shows is "that Menveo's entry clearly caused Sanofi to lower prices relative to levels that would have existed *but-for Menveo's entry*."<sup>1262</sup> That is demonstrably the wrong but-for baseline for analyzing the impact of the Bundle.

695. When analyzing non-price effects, Professor Rubinfeld repeats his use of the wrong but-for baseline yet again. He argues, "There is evidence that Menveo entry led to substantial competition on ... non-price dimensions between

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<sup>1258</sup> Rubinfeld Report ¶546 (emphasis added).

<sup>1259</sup> Rubinfeld Report ¶547 (emphasis added).

<sup>1260</sup> Rubinfeld Report ¶548-551.

<sup>1261</sup> Rubinfeld Report ¶552 (emphasis added).

<sup>1262</sup> Rubinfeld Report ¶553 (emphasis added).



Sanofi and Novartis.”<sup>1263</sup> The correct economic question is not whether we see more nonprice competition post-entry than we would have seen without any Menveo entry. Indeed, by definition one must see more nonprice competition with entry than without it because one cannot have nonprice competition if there is no competitor. The correct economic question is whether we see more nonprice competition than we would have seen with Menveo entry and no anticompetitive Bundle. Professor Rubinfeld provides zero evidence that the nonprice competition that actually occurred with entry was more vigorous than the nonprice competition that would have occurred with entry but without the Bundle. He thus does not even ask the right question. Instead, Professor Rubinfeld’s impact analysis again uses an economically flawed baseline that is rejected by his own academic writings.

696. **c. Professor Rubinfeld Does Not Dispute That Actual Post-Entry Menactra Prices Were Greater than Or Equal to Actual Pre-Entry Menactra Prices.** Professor Rubinfeld does not actually dispute that Sanofi did not reduce Menactra prices following Menveo entry relative to pre-entry levels. For example, none of his three following arguments refutes my point that Sanofi did not reduce Menactra’s price relative to pre-entry levels: (1) his argument that Sanofi sometimes *delayed* further price increases after Menveo entry;<sup>1264</sup> (2) his argument that Sanofi’s prices grew more slowly following Menveo entry;<sup>1265</sup> or (3) his argument that after Menveo entry, Sanofi *continued* to use the same 3% seasonal discounts on Menactra as it had used before Menveo entry.<sup>1266</sup>

697. Indeed, the only situation in which Sanofi actually reduced a customer’s Menactra price relative to pre-entry levels is when Sanofi granted individualized discounts (called “management exceptions”) to customers on their Menactra purchases. Professor Rubinfeld refers to this as Sanofi’s “Menactra Price Match Process.”<sup>1267</sup> But I showed in my opening merits report that “only 0.05% of Class members got individualized ‘management exception’ discounts on

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<sup>1263</sup> Rubinfeld Report ¶559-60.

<sup>1264</sup> Rubinfeld Report ¶545 (“Sanofi ultimately decided to forego the [planned 5% price increase] . . . for [some of] its 4-Product health systems.”); Rubinfeld Report ¶546 (Sanofi delayed 5% price increase for some PBGs).

<sup>1265</sup> Rubinfeld Report ¶547.

<sup>1266</sup> Rubinfeld Report ¶550. I explained in my opening merits report that the Sanofi’s “seasonal discounts” on Menactra “were no more prevalent after Menveo entry than before.” Elhauge Merits Report ¶385. Professor Rubinfeld does not dispute this.

<sup>1267</sup> Rubinfeld Report ¶551.

all of their [Menactra] purchases since Menveo entry,”<sup>1268</sup> and Professor Rubinfeld does not dispute that. Indeed, Sanofi’s internal documents acknowledge that it virtually never granted “management exception” discounts on Menactra in response to competition from Menveo because the Bundle would prevent customers from switching to Menveo even if Menveo was priced at a discount relative to Menactra.<sup>1269</sup>

698. In sum, *even accepting all of Professor Rubinfeld’s arguments on Sanofi’s response to Menveo entry*, the evidence indicates that Sanofi reduced Menactra’s price relative to pre-entry levels for at most the 0.05% of class members. In contrast, in the but-for world without the Bundle, Sanofi would have reduced Menactra’s post-entry price from pre-entry levels for 100% of class members. This is further evidence confirming that the Bundle anticompetitively inflated Menactra prices.

699. **d. Professor Rubinfeld’s Price Trajectory Analysis is Unscientific and Does Not Bear in Any Way on But-for Prices.** Professor Rubinfeld asserts that, although Menactra’s price did not decrease following Menveo entry, it grew more slowly after Menveo entry than it had before Menveo entry.<sup>1270</sup> As noted above, this analysis uses the wrong but-for baseline by defining it as the world without entry rather than the world with entry but no Bundle. In addition, this sort of “price trajectory” analysis, where one simply compares the growth rate in prices before and after an event (here Menveo entry), is unscientific and contradicted by basic economic theory.

700. Economists (including Professor Rubinfeld in his *academic* work) never employ “price trajectory” analysis because it is pseudoscience that conflicts

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<sup>1268</sup> Elhauge Merits Report ¶372. The data also shows that, since Menveo entry, only 0.4% of Menactra doses have received management exceptions. “MRebut348 class mct doses with me.csv”.

<sup>1269</sup> See, e.g., SP 00684858-60 (Sanofi employee stating there was no need to match Menveo’s lower price at a restrained customers because they could convince the customer to stock with Menactra by explaining that the customer would lose its 4P system prices on Sanofi’s Pediatric vaccines if it switched to Menveo); SP 00827165 at SP 00827168 (internal Sanofi slideshow from March 2010 explaining that Sanofi will “match” Menveo’s price to a private customer only as a “last line of defense” and that “when a customer mentions a competitor offer” Sanofi representatives should “reinforce the . . . current portfolio benefits [i.e., the bundled penalties on Sanofi Pediatric vaccines] first” and “resort to price match only if necessary.”)

<sup>1270</sup> Rubinfeld Report ¶¶547-549 & Exhibits 34-35.

with basic economic theory. This “price trajectory” methodology relies on the assumption that prices, like a physical object in motion, have “momentum” that will cause them to continue to go in the same direction they have previously. But there is no economic basis for such an assumption. Instead, economic theory shows that prices change as the factors that affect the profit-maximizing price change.<sup>1271</sup> Economists therefore do not engage this pseudoscientific “trajectory” analysis, but instead analyze whether changes in price over time are explained by the factors that affect profit-maximizing prices, such as marginal costs, demand, and anticompetitive conduct.<sup>1272</sup> I have performed the appropriate analysis, and have shown that no factors besides Sanofi’s anticompetitive conduct can explain why Menactra’s price failed to decrease following Menveo entry.

701. Similarly, Professor Rubinfeld’s claim that the “moderation of Menactra price growth” is not explained by “general inflation”<sup>1273</sup> is methodologically erroneous because it again relies on the pseudoscientific “price trajectory” theory. Moreover, it wrongly relies on “general inflation” rates when we actually have direct data on Menactra’s marginal cost.

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<sup>1271</sup> Professor Rubinfeld’s academic writing acknowledges that prices are determined by supply factors (such as cost) and demand factors, rather than “momentum” or “trajectory.” For example, his Microeconomics textbook presents a series of examples predicting future prices. In all of these examples, Professor Rubinfeld’s textbook makes predictions about future prices based on how supply and demand factors change in the future. In none of these examples does he engage in the sort of pseudoscientific “price trajectory” analysis he uses here. *See* RUBINFELD & PINDYCK, MICROECONOMICS 53-57 (8<sup>th</sup> ed. 2013). Throughout this textbook, Professor Rubinfeld repeatedly explains how prices are determined by supply and demand factors, and never asserts that prices have “momentum” or a “trajectory.”

<sup>1272</sup> *See, e.g.*, ABA SECTION OF ANTITRUST LAW, ECONOMETRICS 325-340 (2d ed. 2014) (presenting example of an analysis measuring the effect of alleged anticompetitive conduct on prices. The explanatory variables include factors that affect profit-maximizing price, such as cost, demand, and anticompetitive conduct, but do not include any sort of “price momentum” variable); ABA SECTION OF ANTITRUST LAW, ECONOMETRICS 221 (1<sup>st</sup> ed. 2005) (A regression measuring the effect of alleged anticompetitive conduct on price “would typically use price . . . as the dependent variable. Independent variables may include dummy variables representing the product characteristics and the dates of the alleged conspiracy period. Other variables sometimes warranting inclusion are the quantity purchased and year. Additional variables may be needed to represent other supply and demand conditions when these help determine price.” Note that this list of explanatory variables that should be included is limited to factors that affect profit-maximizing price, and excludes any sort of “price momentum” variable).

<sup>1273</sup> Rubinfeld Report ¶549.

702. **e. Sanofi Did Not Increase Discounts After Menveo Entry, But Instead Artificially Increased the Disloyalty Penalties By Increasing Disloyal Prices.** Professor Rubinfeld asserts incorrectly that Sanofi increased its “contract discounts” following Menveo entry.<sup>1274</sup> To the contrary, Professor Rubinfeld’s own Exhibit 34 shows that Sanofi did *not* reduce its contract prices following Menveo entry. Instead, his Exhibit 34 shows that Sanofi increased Menactra’s list price (the disloyal price) over time, thus further increasing the disloyalty penalty a customer would pay on Menactra for violating Sanofi’s Pediatric loyalty requirements. Sanofi’s internal documents show that its employees acknowledged that they could artificially increase the cost of switching to rival vaccines without providing any real discounts by simply increasing the disloyal price.<sup>1275</sup>

703. Professor Rubinfeld’s Exhibit 36 observes that Menactra’s list price grew slightly more slowly than some of Sanofi’s Pediatric vaccines (though it actually grew faster than Pentacel’s list price), but that just means that Sanofi artificially increased the disloyalty penalty on its Pediatric vaccines more than it artificially increased the disloyalty penalty on Menactra. Increasing the disloyalty penalty customers must pay on Sanofi’s Pediatric vaccines increases the bundled penalty customers face for buying Menveo, so Professor Rubinfeld’s Exhibit 36 actually indicates that Sanofi increased the restraining effect of the Bundle over time.

***C. Even Stable, as Opposed to Decreasing, Demand and Costs Could Not Explain Why Menactra Prices Did Not Decrease After Menveo Entry***

704. In my opening merits report, I showed that the lack of a Menactra price decrease following Menveo entry could not be explained by costs or demand because Sanofi’s marginal cost and MCV4 demand were both decreasing when Menveo entered the MCV4 market in March 2010.<sup>1276</sup> Professor Rubinfeld asserts that Sanofi’s marginal cost and MCV4 demand were *stable* (neither increasing nor

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<sup>1274</sup> Rubinfeld Report ¶548.

<sup>1275</sup> SP 00496642 (Sanofi document titled “Pricing & Contracting Strategy: Maintaining our Dominant Market Share & Positioning Ourselves for 2010”); *id.* at SP 00496647 (stating that Sanofi had a strategic goal to “Increase the customer costs of switching by increasing the discount dollars associated with maintaining a loyal product selection. Note: This can be accomplished by increasing list and the contract discount – not necessarily a net price change.”)

<sup>1276</sup> Elhauge Merits Report Parts VI.B.1-2.

decreasing significantly) during Menveo entry.<sup>1277</sup> But the conclusion that the Bundle inflated MCV4 prices follows even if one accepts Rubinfeld's claim that Sanofi's marginal cost and MCV4 demand were merely stable (rather than decreasing). If, as Professor Rubinfeld asserts, Sanofi's marginal costs and MCV4 demand "would not have led Sanofi to change prices in any material way,"<sup>1278</sup> then these factors still cannot explain why Menactra's 100% monopoly level price failed to decrease following Menveo entry. In short, Professor Rubinfeld's admission that Sanofi's marginal costs and MCV4 demand were not increasing at the time of Menveo entry means there is no dispute about my point that changes in Sanofi's marginal costs and MCV4 demand cannot explain the abnormal lack of a Menactra price decrease from 100% monopoly levels following Menveo entry.

705. In any event, Professor Rubinfeld is also wrong that Sanofi's marginal costs and MCV4 demand were "not decreasing," as I explain below.

*1. Sanofi's Marginal Costs Were Decreasing During Menveo Entry*

706. Professor Rubinfeld opines that Sanofi's marginal costs did not change significantly during Menveo entry.<sup>1279</sup> As just noted, this admission proves that changes in Sanofi's marginal costs cannot explain why Menactra's price failed to decrease following Menveo entry.

707. Professor Rubinfeld is also wrong that Sanofi's marginal costs were not decreasing at the time of Menveo entry. I showed using Sanofi's cost data that Sanofi's marginal costs decreased from \$17.99/dose in 2009 (the last year before Menveo entry) to \$15.08 in 2010 (the year of Menveo entry), which is a 16% decrease.<sup>1280</sup> Menactra's marginal cost further decreased slightly from \$15.08 in 2010 to \$14.84 in 2011.<sup>1281</sup> Professor Rubinfeld does not cite any alternative measure of cost data to refute this.

708. Professor Rubinfeld asserts that Menactra's marginal cost "only dips slightly from 18% in 2009 to 15% in 2010 of list prices."<sup>1282</sup> But his own measure

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<sup>1277</sup> Rubinfeld Report Part IX.C.1 ("Sanofi's marginal costs were not decreasing"); Rubinfeld Report Part IX.C.2 ("MCV4 demand was not decreasing.").

<sup>1278</sup> Rubinfeld Report ¶555.

<sup>1279</sup> Rubinfeld Report ¶¶554-555.

<sup>1280</sup> Elhauge Merits Report Table 19.

<sup>1281</sup> Elhauge Merits Report Table 19.

<sup>1282</sup> Rubinfeld Report ¶554.



still shows a substantial 17% decrease in Menactra's cost (as a ratio to list prices), which is inconsistent with his claim that marginal cost was "stable."<sup>1283</sup> Nor does Professor Rubinfeld provide any reason why one should measure marginal cost as a percentage of "list price." The relevant question here is whether Sanofi's marginal cost explains why Menactra's profit-maximizing price did not decrease following Menveo entry, and Menactra's profit-maximizing price depends on its actual marginal cost per dose, not the ratio of its marginal cost to its list price.

709. Professor Rubinfeld criticizes my Sanofi marginal cost measure on the ground that it is based upon Sanofi's accounting cost data,<sup>1284</sup> but he neither identifies any alternative cost data nor proposes any alternative methodology for translating Sanofi's accounting cost data into an estimate of marginal cost. He observes that much of the decrease in Sanofi's marginal cost from 2009 to 2011 was driven by a decrease in Sanofi's marginal promotion/sales costs,<sup>1285</sup> but he provides no reasoning how that is relevant or would alter the conclusion that Sanofi's marginal costs as a whole were decreasing from 2009 to 2011. Professor Rubinfeld does not cite any source supporting his claim that one should ignore an element of a firm's marginal cost (such as a firm's marginal marketing/sales force costs) when analyzing whether its marginal costs have changed over time. In any event, it would take a cost increase for changes in costs to possibly explain why prices rose after entry, and Professor Rubinfeld does not claim that there was any cost increase at all, even if one wrongly ignores the decrease in sales force cost.

## *2. MCV4 Market Demand Was Decreasing When Menveo Entered*

710. Although Professor Rubinfeld asserts that MCV4 demand was not decreasing, that assertion conflicts with Sanofi's contemporaneous business documents, which stated that demand for MCV4 vaccines was decreasing in April 2010 when Menveo was entering,<sup>1286</sup> and with Professor Rubinfeld's admission that his own analysis shows "there was a small drop in demand between 2010 and 2011."<sup>1287</sup> Thus, his own analysis actually confirms my point that demand was in fact decreasing when Menveo entered.

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<sup>1283</sup>  $(18\% - 15\%) / (18\%) = 17\%$ .

<sup>1284</sup> Rubinfeld Report ¶555.

<sup>1285</sup> Rubinfeld Report ¶555.

<sup>1286</sup> Elhauge Merits Report ¶242.

<sup>1287</sup> Rubinfeld Report ¶557.

711. Professor Rubinfeld asserts that MCV4 demand was not decreasing enough at the time of Menveo entry to “prompt Sanofi to drop its contract price.”<sup>1288</sup> But he offers no analysis to support that assertion. Moreover, even if his assertion were true, it would still mean there was *no increase* in MCV4 demand at the time that could explain why the addition of competition from Menveo did not cause Menactra to reduce its prices from pre-entry levels. Indeed, Professor Rubinfeld does not dispute that changing MCV4 demand conditions cannot explain why Menactra’s price failed to decrease from 100% monopoly levels following Menveo entry.

712. Professor Rubinfeld relatedly argues that Menactra’s profit-maximizing price does not depend on shifts in MCV4 demand based on the premise that “Sanofi did not raise its PBG contract price at all” when “the ACIP recommendation of a booster dose in October 2010 corresponded with a 31% increase in private MCV4 demand in April to September 2011.”<sup>1289</sup> Even if one accepted Professor Rubinfeld’s argument that Menactra’s profit-maximizing price does not depend on MCV4 demand, which conflicts with standard economics,<sup>1290</sup> that would still support my ultimate claim that changing MCV4 demand cannot explain why Menactra’s price did not decrease following the introduction of competition from Menveo.

713. Professor Rubinfeld’s observation that “the overall MCV4 private market grew on average 4.3% per year between 2009 and 2013” is irrelevant.<sup>1291</sup> The growth rate from 2009-2013 is irrelevant because the question here is whether Sanofi’s failure to reduce Menactra’s price in March 2010 (when Menveo entered) is explained by changing MCV4 demand conditions at that time. Professor Rubinfeld appears to recognize that this 2009-2013 growth rate is irrelevant to this

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<sup>1288</sup> Rubinfeld Report ¶557.

<sup>1289</sup> Rubinfeld Report ¶557.

<sup>1290</sup> See Professor Rubinfeld’s own microeconomics textbook acknowledges that a firm’s profit-maximizing price depends in part on market demand when the firm has market power or monopoly power. PINDYCK & RUBINFELD, MICROECONOMICS 358 (8<sup>th</sup> ed. 2013) (“Monopoly . . . power [is a form] of market power: the ability – of either a seller or buyer- to affect the price of a good. . . . To maximize profit, the monopolist must first determine its costs and the characteristics of market demand. Knowledge of market demand and cost is crucial for the firm’s economic decision making. Given this knowledge, the monopolist must then decide how much to produce and sell. The price per unit that the monopolist receives then follows directly from the market demand curve. Equivalently, the monopolist can determine price, and the quantity it will sell at that price follows from the market demand curve.”). Elhauge Merits Report ¶¶313-320.

<sup>1291</sup> Rubinfeld Report ¶557.

question, as he does not draw any conclusions from it. The only reason the 2009-2013 growth rate was positive is because ACIP recommended a booster dose in 2011, as Professor Rubinfeld acknowledges.<sup>1292</sup> As an aside, I show below that in the but-for world, with lower MCV4 prices, the MCV4 growth rate would have been substantially greater.<sup>1293</sup> In any event, an increase in MCV4 demand from 2011 onward cannot explain why Sanofi failed to reduce Menactra's price when Menveo entered in March 2010.

***D. Professor Rubinfeld Provides No Evidence that Non-Price Competition Negated the Lack of a Price Drop or Would Not Have Existed But For the Bundle***

714. Professor Rubinfeld argues that Sanofi and Novartis engaged in “non-price” competition (such as advertising).<sup>1294</sup> But the non-price competition he describes neither offsets the anticompetitive overcharge on Menactra and Menveo, nor provides an alternative explanation as to why Menactra's price did not drop following Menveo entry (as one would have expected absent an anticompetitive restraint). Moreover, as detailed above, Professor Rubinfeld's analysis of nonprice competition uses the wrong but-for baseline because he asks whether nonprice competition was higher than it would have been without Menveo entry.<sup>1295</sup> He provides zero evidence that nonprice competition was higher than it would have been without the Bundle. His observations on nonprice competition are thus irrelevant.

**VIII. MY DIFFERENTIATED BERTRAND MODEL CORRECTLY INDICATES THAT MCV4 PRICES WOULD BE SIGNIFICANTLY LOWER BUT-FOR THE BUNDLE**

715. In Part VII of my opening merits report, I used a price simulation grounded in the facts and data of this case to determine what but-for Menactra and Menveo prices would have been without the Bundle. I used the differentiated Bertrand competition model, which the academic literature (including Professor Rubinfeld's own prior writings) acknowledges is the standard assumption in markets that are differentiated (like the MCV4 market). I also grounded the model

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<sup>1292</sup> Rubinfeld Report ¶557.

<sup>1293</sup> Elhauge Merits Report Figure 37.

<sup>1294</sup> Rubinfeld Report ¶¶558-560.

<sup>1295</sup> See *supra* Part VII.A.

firmly in the facts of the case by using the data in this case as the basis for *every* quantitative input to the differentiated Bertrand competition model. In other words, I used data *specifically about the MCV4 market* to determine what prices would have been in the MCV4 market without the Bundle. This (among many other reasons) makes my differentiated Bertrand competition model a significantly more accurate estimate of but-for MCV4 prices than Professor Rubinfeld's proposals for using entirely different markets as yardsticks to determine but-for prices. Professor Rubinfeld does not even attempt to control for any of the ways in which his proposed yardstick markets differ from the MCV4 market, or for the fact that all or nearly all of them are infected by anticompetitive bundling.<sup>1296</sup>

716. Ultimately, my differentiated Bertrand competition model showed Menactra's price would be significantly lower in the but-for world, and consequently that 38-43% of Sanofi's actual private Menactra prices reflected anticompetitive overcharges, depending on the year.<sup>1297</sup> My differentiated Bertrand competition model similarly showed that 49-57% of Novartis's actual private Menveo prices reflected anticompetitive overcharges, depending on the year.<sup>1298</sup> This indicates that Sanofi succeeded in using the Bundle to anticompetitively inflate Menactra and Menveo prices, which is exactly what Sanofi intended and predicted the Bundle would do, according to its contemporaneous business documents.<sup>1299</sup>

717. Part X of Professor Rubinfeld's report claims that my differentiated Bertrand competition model is unreliable. As I explain below, Professor Rubinfeld's criticisms are deeply flawed, and thus none causes me to change my opinions about the reliability and appropriateness of my differentiated Bertrand competition model.

### ***A. Competition, Not Coordination***

718. The differentiated Bertrand competition model applies when competitive interaction reflects three characteristics: (1) the products are *differentiated*; (2) the interaction is *Bertrand*, meaning the firms interact by setting price, rather than by setting a capacity that determines output; and (3) the firms

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<sup>1296</sup> See *infra* Part X.B.1.

<sup>1297</sup> Elhauge Merits Report ¶351.

<sup>1298</sup> Elhauge Merits Report Table 30.

<sup>1299</sup> Elhauge Merits Report ¶162, citing SP 00496642 at SP 00496645.

engage in competition, rather than coordination, on prices.<sup>1300</sup> Professor Rubinfeld does not dispute that the first two characteristics are met by the MCV4 market, although he does quibble about how strong the product differentiation is. Instead, he claims that the third characteristic does not apply because he claims that the firms coordinate on prices.<sup>1301</sup> My conclusion that the firms in the MCV4 market do not coordinate on price was based not only on market characteristics that made coordination implausible, but also because actual market data affirmatively disproved any price coordination. More specifically, I found that:

- Actual market characteristics made coordination difficult in the MCV4 market in general (demand differentiation, asymmetric costs, uncertainty about rival costs).<sup>1302</sup>
- Factors unique to class member prices made it especially difficult to coordinate on class member prices (opacity and complexity of class-member prices).<sup>1303</sup>
- Novartis's decision to introduce Menveo at a significant discount relative to Menactra disproves coordination on class member prices.<sup>1304</sup>
- The volume-based Menveo price structure Novartis adopted after its introductory offer did not match Sanofi's bundled-loyalty-based Menactra price structure, further disproving coordination on class member prices.<sup>1305</sup>
- Sanofi's and Novartis's transaction data confirms that they essentially never charged the same price as each other to a given class member, and that there was no discernable pattern between Sanofi and Novartis prices.<sup>1306</sup>

719. In Part X.A of his report, Professor Rubinfeld argues that Sanofi and Novartis were in fact able to coordinate on class member prices. However, Professor Rubinfeld fails to refute the substantial evidence that market conditions made coordination on class member prices implausible and that transactional data proved that such price coordination did not actually occur.

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<sup>1300</sup> Elhauge Merits Report ¶252.

<sup>1301</sup> Rubinfeld Report Part X.A.

<sup>1302</sup> Elhauge Merits Report ¶¶269-271.

<sup>1303</sup> Elhauge Merits Report ¶¶272-274.

<sup>1304</sup> Elhauge Merits Report ¶276.

<sup>1305</sup> Elhauge Merits Report ¶277.

<sup>1306</sup> Elhauge Merits Report ¶279-284.



*1. VFC and List Price Coordination Does Not Indicate Coordination on Class Member Prices*

720. Professor Rubinfeld is correct that Menactra and Menveo's VFC and List prices were the same (or approximately the same),<sup>1307</sup> but that does not indicate that Sanofi and Novartis were able to coordinate on the actual private sector prices that were paid by class members.

721. **a. VFC Price Coordination Does Not Indicate Coordination on Private Prices to Class Members.** VFC price coordination does not indicate coordination on private prices to class members for two overarching reasons. First, class members by definition make private purchases and thus do not ever pay VFC prices. Coordination on VFC prices thus cannot show coordination on private prices to class members. Second, at least five factors make it significantly easier to coordinate on VFC prices than on class member prices, so an ability to coordinate on VFC prices does not establish an ability to coordinate on class member prices. I explained all of these in my opening merits report:

*"First, VFC prices are significantly more transparent – each firm charges only a single VFC price at any given point in time and that price is publicly available. Second, VFC prices are significantly more simple than private sector prices. Each firm charges only a single VFC price, whereas in the private sector Sanofi and Novartis use complex pricing structures that can result in each firm charging dozens of different prices to private customers at any given point in time. Third, the VFC sector has salient points for coordinated prices that the private segment does not: the caps on VFC prices. Fourth, the VFC price caps bound the range of possible coordinated prices. Fifth, the fact that VFC prices are regulated makes transparency, saliency, and simplicity mandatory and thus more stable over time. The fact that Menactra and Menveo prices were at parity in the VFC segment of the market but not the private segment of the market confirms that it is significantly easier to coordinate on VFC prices than on Class member prices."*<sup>1308</sup>

Professor Rubinfeld does not dispute any these points, and thus he offers no explanation why they do not disprove his claim that coordination on VFC pricing means that firms must be able to coordinate on private prices.

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<sup>1307</sup> Rubinfeld Report ¶¶561-562.

<sup>1308</sup> Elhauge Merits Report n.533 (citations omitted).

722. **b. List Price Parity Does Not Indicate Coordination on Private Prices to Class Members.** List price parity also does not indicate coordination on actual class member prices. There are three main reasons.

723. First, hardly any class members pay list price for Menactra or Menveo. Only 2.9% of Menactra doses are sold at list price, and only 0.3% of Menveo doses are sold at list price.<sup>1309</sup> Professor Rubinfeld's only response is that a slightly higher percentage of Menactra doses (9.8%) are sold at "list price" if one uses an overly broad definition of "list price" that includes not only the actual list price, but also list price less a 2% cash discount, list price less a 1% online-ordering discount, or list price less a combined 3% cash-plus-online-ordering discount.<sup>1310</sup> But even using his overly broad definition of list prices, his own figures show that over 90% of Menactra doses are not sold at list prices, meaning that list parity cannot show coordination for at least 90.2% of sales. Moreover, his overly broad definition of list prices is inappropriate because the fact that Sanofi offers cash and online discounts does not mean that each *customer* actually received those discounts because these discounts are not automatic. Sanofi data shows that, among customers on disloyal Sanofi programs (and thus have Menactra contract prices equal to its list price), 31% of orders received *neither* the online nor the cash discount, 9% of orders received *only* the 2% cash discount, and 59% of orders received both the cash and online discounts (for a 3% discount total).<sup>1311</sup> Because these cash and online discounts vary from customer to customer, it not economically appropriate to define Sanofi's "list" price to include these discounts.

724. Second, the mere fact that a customer pays list price for Menactra or Menveo does not actually mean that the customer faces paying list price for *both* Menactra and Menveo, which is what Professor Rubinfeld must show to establish that list price parity resulted in parity on private prices to class members. For example, take a hypothetical customer who is on Sanofi's GPO Access contract and purchases primarily GSK Pediatrics and Menveo. Even assuming this hypothetical customer actually pays list price for Menactra (i.e., gets no cash, online, or VaxMax discounts), it would most likely *not* be paying list price for

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<sup>1309</sup> Elhaug Merits Report Figures 26-27.

<sup>1310</sup> Rubinfeld Report ¶562.

<sup>1311</sup> "MR80 Cash Online Disc Prevalence Disloyal.txt". Less than 1% of orders received only the 1% online discount.

Menveo, but instead would be paying a significantly discounted Menveo price due to Novartis's volume-based price structure. Thus, the fact that Menveo and Menactra's list prices are the same does not necessarily mean that the prices they charge a given customer will be the same, even if Sanofi is charging that customer list price. Indeed, the fact that Menactra's price structure (which is based primarily on loyalty to Sanofi's Pediatric vaccines) does not match with Menveo's price structure (which is based primarily on the volume of Menveo purchased) means that it should be rare for a customer to pay list price for both Menveo and Menactra. Sanofi and Novartis price data confirms that "list price parity" did not result in actual price parity, *even for the customers whose contract Menactra prices equaled Menactra's list price*. The contract Menactra price (i.e., the starting price for a contract before accounting for cash, online, VaxMax, or seasonal discounts) for customers on Sanofi's GPO Access and No-Contract programs equals Menactra's list price. But even among these customers, only 4% actually paid Menactra prices that were within \$1 of the price they paid for Menveo.<sup>1312</sup>

725. Third, coordination on list price does not indicate an ability to coordinate on actual class member prices because list prices are transparent and unitary in a way that makes coordination on them much easier than coordination on class member prices. Unlike class members' actual net price, Menveo and Menactra's list prices are publicly available,<sup>1313</sup> and by definition are simple (Menactra and Menveo each have only one list price, whereas there are many different net class member prices). Because price transparency and simplicity both facilitate coordination on price,<sup>1314</sup> it is significantly easier to coordinate on list prices than it would be to try to coordinate on actual net private prices to class members.

## 2. All Oligopoly Firms Have Incentives to Coordinate – But That Does Not Mean All of Them **Can** Coordinate

726. Professor Rubinfeld notes that Sanofi and Novartis have a strong *incentive* to coordinate because they would earn significantly higher profits with coordinated pricing.<sup>1315</sup> But as I explained in my merits report, this incentive exists

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<sup>1312</sup> "MRebut2276 MCT disloyal within 1.txt."

<sup>1313</sup> The CDC publishes vaccine list prices. See, e.g. <http://www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/archive.html>.

<sup>1314</sup> Elhauge Merits Report ¶272, ¶274.

<sup>1315</sup> Rubinfeld Report ¶¶564-566.

in *all* duopolies, yet not all duopolies result in coordinated pricing.<sup>1316</sup> Professor Rubinfeld does not dispute this point. The reality, which Professor Rubinfeld does not dispute, is that although all duopolistic firms *wish* to coordinate, not all firms are *able* to coordinate because some markets have characteristics that make coordination implausible.

727. Indeed, one of Professor Rubinfeld's textbooks repeatedly observes that firms will often fail to coordinate even though coordination would increase profits. For example, it states that "in some oligopolistic industries, firms do cooperate, but in others, they compete aggressively, even though this means lower profits."<sup>1317</sup> Professor Rubinfeld's textbook also presents a simple explanation of how duopolistic firms face a prisoner's dilemma where each firm's individual incentive makes them cut price even though coordinating on elevated prices would maximize joint profits:

"Oligopolistic firms often find themselves in a prisoners' dilemma. They must decide whether to compete aggressively, attempting to capture a larger share of the market at their competitor's expense, or to 'cooperate' and compete more passively, coexisting with their competitors and settling for their current market share, and perhaps even implicitly colluding. If the firms compete passively, setting high prices and limiting output, they will make higher profits than if they compete aggressively. Like our prisoners, however, each firm has an incentive to 'fink' and undercut its competitors, and each knows that its competitors have the same incentive. As desirable as cooperation is, each firm worries—with good reason—that if it competes passively, its competitor might decide to compete aggressively and size the lion's share of the market."<sup>1318</sup>

728. Professor Rubinfeld's textbook provides yet another explanation of why firms are often unable to coordinate even though doing so would be profitable:

"But if cooperation can lead to higher profits, why don't firms cooperate *without* explicitly colluding? In particular, if you and your competitor both figure out the profit-maximizing price you would agree to charge *if* you were to collude, *why not just set that price and*

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<sup>1316</sup> Elhauge Merits Report ¶266.

<sup>1317</sup> PINDYCK & RUBINFELD, MICROECONOMICS 451 (8<sup>th</sup> ed. 2013).

<sup>1318</sup> Pindyck & Rubinfeld, Microeconomics 471 (8<sup>th</sup> ed. 2013).

*hope your competitor will do the same? If your competitor does do the same, you will both make more money. The problem is that your competitor probably won't choose to set price at the collusive level. Why not? Because your competitor would do better by choosing a lower price, even if it knew that you were going to set price at the collusive level.”*<sup>1319</sup>

729. Here, my analysis shows not only that the characteristics of the MCV4 market and class member prices would make it difficult to coordinate on class member prices, but also that Sanofi and Novartis did not actually coordinate on class member prices in the actual world. The mere fact that Sanofi and Novartis, like all other duopolists, had incentives to coordinate does not refute that they were unable to coordinate.

730. Further, Professor Rubinfeld ignores that firms have less to gain from coordination in a differentiated product market (such as the MCV4 market). This is because profit margins in the absence of coordination are higher in a differentiated market than in an undifferentiated market. For example, here, in the but-for world with a differentiated market, even perfect coordination would only increase Sanofi's profit margin from 74%<sup>1320</sup> to 93%,<sup>1321</sup> whereas in an undifferentiated market, coordination would increase the profit margin from 0% to 93%. Thus, contrary to Professor Rubinfeld's analysis, this factor actually cuts against coordination here because there are smaller potential gains from coordination in a differentiated market like this one than there would be in a typical oligopoly market with a homogeneous product.

### *3. Characteristics of MCV4 Market and Class Member Prices Made Coordination Implausible*

731. Economists have long recognized that there are many types of obstacles that can make coordination difficult in a given market or segment of a market. In my opening merits report, I explained that three characteristics of the MCV4 market made coordination difficult – product differentiation, differences between Sanofi and Novartis marginal costs, and the fact that Sanofi and Novartis

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<sup>1319</sup> Pindyck & Rubinfeld, Microeconomics 469 (8<sup>th</sup> ed. 2013) (emphasis in original).

<sup>1320</sup> Elhauge Merits Report ¶354.

<sup>1321</sup> Elhauge Merits Report ¶317.



did not know each other's marginal costs.<sup>1322</sup> I also showed that two characteristics of class member prices – the opacity and complexity of class member prices - made coordination especially difficult for class member prices.<sup>1323</sup>

732. Professor Rubinfeld claims that market conditions meant that Sanofi and Novartis could in fact coordinate on class member prices.<sup>1324</sup> However, his arguments are incorrect.

733. **Fact That Not Every Possible Obstacle to Coordination Existed in Private Segment of MCV4 Market Does Not Mean Coordination Was Plausible.** Professor Rubinfeld first argues that coordination is plausible in the MCV4 market because it does not have three other potential obstacles to coordination: an unconcentrated market, high demand elasticity, and additional rival entry.<sup>1325</sup> But establishing that not *every* possible obstacle to coordination existed does not prove that coordination was plausible. A fallacious argument analogous to Professor Rubinfeld's would be to say that a car missing its wheels and engine must still be drivable because it isn't *also* missing its axle, steering wheel, and transmission.

734. Professor Rubinfeld mischaracterizes my book with Damien Geradin as stating that “[t]he most significant factor [determining successful price coordination] is the number of firms.”<sup>1326</sup> The portion in brackets was inserted by Professor Rubinfeld and entirely changes the meaning of what I said. I never suggested that having a small number of firms might suffice to determine an ability to successfully price coordinate. Instead, I said that a large number of firms was the most important factor because it generally sufficed to conclude that price coordination would be *unsuccessful*, but that other factors—including specifically *differentiated products, nonpublic pricing, or cost variations—also typically sufficed to make price coordination unlikely*. Here is what I said in full in the passage he misquotes was the following:

“The ability of the firms to [coordinate] will *depend on whether market conditions make it easy* to: (1) settle on a cooperative price; (2) notice defection by other firms from that price; and (3) respond to

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<sup>1322</sup> Elhauge Merits Report ¶¶269-271.

<sup>1323</sup> Elhauge Merits Report ¶¶272-274.

<sup>1324</sup> Rubinfeld Report ¶¶567-590.

<sup>1325</sup> Rubinfeld Report ¶¶568-571.

<sup>1326</sup> Rubinfeld Report ¶ 569 (misquoting ELHAUGE & GERADIN, GLOBAL ANTITRUST LAW & ECONOMICS 923 (2d ed. Foundation Press 2011)).

such defection. *The most significant factor is the number of firms. The greater the number of firms, the more difficult it will be to meet those conditions* because other firms are less likely to notice defection by a particular firm or to respond to it, and it is harder to settle on a common price. Some empirical evidence indicates that after five firms, the addition of more firms makes little difference, suggesting that *five firms is normally sufficient to prevent oligopolistic coordination*. A market with five equally sized firms would have an HHI of 2000.

*Other market factors may also impede oligopolistic coordination. If the product is not homogeneous, but instead firms offer products with varying quality or characteristics, it will be difficult to settle on a common schedule of prices* reflecting those variations and to notice and respond to defection by others, which may take the form of nonprice competition. *If pricing is not public but privately negotiated, or if secret discounts are made from public pricing, then it will be harder to notice or respond to defection by others. If the costs of firms vary, it will be difficult to settle on a common price.*<sup>1327</sup>

735. Thus, I clearly first indicated that an ability to coordinate will “depend” on market conditions making it “easy” to settle, notice, and respond on prices. I then stated that the number of firms was the most significant factor because a large number of firms made that difficult and was “normally sufficient to *prevent* oligopolistic coordination.” I never suggested that having few firms could determine successful price coordination. To the contrary, I explicitly stated that “Other market factors may *also* impede oligopolistic coordination.” In discussing those other factors, I specifically said that “If the product is *not homogeneous*, ... it will be *difficult*” to settle, notice, and respond on price. Given that I said coordination depended on it being “easy” to settle, notice, and respond on price, this statement clearly indicated that differentiated products typically *suffices* to make price coordination unlikely. Likewise, I noticed that “If pricing is not public ... it will be harder” to meet these conditions, thus indicating that nonpublic pricing also typically *suffices* to make price coordination unlikely. Finally, I noted that “If the costs of firms vary, it will be difficult to settle on a common price,” thus indicating the cost variations typically *suffices* to make price coordination

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<sup>1327</sup> ELHAUGE & GERADIN, GLOBAL ANTITRUST LAW & ECONOMICS 923-24 (2d ed. Foundation Press 2011).

unlikely. In short, my passage states precisely the opposite of what Professor Rubinfeld implies it states.

736. **VFC Price Coordination Does Not Mean That Product Differentiation, Cost Asymmetries, and Uncertainty About Rival Costs Do Not Pose Obstacles to Coordination in the MCV4 Market.** Professor Rubinfeld asserts that product differentiation, cost asymmetries, and uncertainty about rival costs must not pose significant barriers to coordination in the MCV4 market given that Sanofi and Novartis were able to overcome those barriers to coordinate on VFC prices.<sup>1328</sup> Professor Rubinfeld ignores the fact that characteristics of VFC prices made it significantly easier to overcome those obstacles to coordination in the VFC sector than for sales to private customers or in typical markets. As I noted in my merits report previously: (1) VFC prices are more transparent, (2) VFC prices are simpler, (3) the VFC price caps provides a salient point for coordination, (4) the VFC cap bounds the range of possible coordinated prices, and (5) the fact that VFC prices are regulated makes transparency, saliency, and simplicity mandatory and thus more stable over time.<sup>1329</sup>

737. **Menactra and Menveo Are Differentiated and This Makes Coordination More Difficult.** In my opening merits report I explained that the MCV4 market is differentiated (customers do not view Menactra and Menveo as identical products) and that the economic literature shows that this differentiation makes coordination more difficult.<sup>1330</sup>

738. Professor Rubinfeld admits there is “some differentiation” in the MCV4 market, such as “features of Menactra that give some consumers a brand preference for Menactra.”<sup>1331</sup> Nonetheless, he asserts that product differentiation impedes coordination only when it is “substantial,” without citing any literature support or definition of what he means by this, and then asserts that here the differentiation is not large enough because “the two products are functionally very similar,” without any support at all for that claim.<sup>1332</sup> It is hard to see how two products could not be sufficiently differentiated if their differences cause consumers to have a preference for one brand because such differentiated

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<sup>1328</sup> Rubinfeld Report ¶573.

<sup>1329</sup> Elhauge Merits Report n.533 (citations omitted).

<sup>1330</sup> Rubinfeld Report ¶269.

<sup>1331</sup> Rubinfeld Report ¶574.

<sup>1332</sup> Rubinfeld Report ¶574.

preferences are precisely what impedes coordination. Further, Professor Rubinfeld's claim here that the products are "very similar" contradicts his own claims in his foreclosure section that Menactra's dominant share in the MCV4 market was explained by Menactra having "several important advantages" over Menveo, such as: "(1) Menactra's first mover advantage, (2) its broader age indications, (3) the ACIP's initial recommendation of booster doses of the same brand of vaccine, (4) Menveo's inability to claim medical superiority, (5) Menveo's need for reconstitution, (6) Menveo's product design and labeling issues, and (7) customers' preferences to purchase multiple vaccines from the same manufacturer."<sup>1333</sup> It is inconsistent for him to argue here that the products are very similar to support a claim of coordination, while arguing elsewhere that the products are very different to support an argument that the differences are so large that they would have given one firm a dominant share without any foreclosure.

739. While Professor Rubinfeld acknowledges that "differentiation can make coordination more difficult," he asserts that it also can "facilitate coordination."<sup>1334</sup> He concludes that accordingly differentiation "gives no strong implication ... for the likelihood of coordinated effects."<sup>1335</sup> Professor Rubinfeld's claim that differentiation makes coordination easier, or has no strong implication for its likelihood, contradicts reams of academic literature and the DOJ/FTC merger guidelines.<sup>1336</sup> His claim also contradicts his own academic writings. For example, Professor Rubinfeld has acknowledged that "the Bertrand pricing assumption," including, notably, no coordination, "is standard in existing simulation models for differentiated products."<sup>1337</sup> If the standard model for

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<sup>1333</sup> Rubinfeld Report ¶468.

<sup>1334</sup> Rubinfeld Report ¶575.

<sup>1335</sup> Rubinfeld Report ¶575 (quoting Kühn, Kai-Uwe, "The Coordinated Effects of Mergers," Chapter 3 in Handbook of Antitrust Economics (Paolo Buccirossi, ed.), MIT Press: 2008, pp. 105-144 at 116.)

<sup>1336</sup> See Elhauge Merits Report n. 422, citing LOUIS KAPLOW, COMPETITION POLICY AND PRICE FIXING 269 (2013); NICHOLSON & SNYDER INTERMEDIATE MICROECONOMICS AND ITS APPLICATION 429 (11<sup>th</sup> ed., Cengage Learning: 2009); TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 240 (1988); DOJ/FTC HORIZONTAL MERGER GUIDELINES §7.2.

<sup>1337</sup> Daniel Rubinfeld & Roy Epstein, Effects of Mergers with Differentiated Products EU Competition Directorate, October 7, 2004, available at [http://ec.europa.eu/competition/mergers/studies\\_reports/effects\\_mergers\\_involving\\_differentiated\\_products.pdf](http://ec.europa.eu/competition/mergers/studies_reports/effects_mergers_involving_differentiated_products.pdf), at 21 ("The Bertrand pricing assumption is standard in existing simulation models for differentiated products both because it is intuitively plausible and analytically tractable.").

analyzing differentiated markets assumes no coordination, it cannot be the case that differentiation has no implication for its likelihood or makes it more likely.

740. **Professor Rubinfeld’s *Ipse Dixit* That Menactra and Menveo’s Costs Are Similar Does Not Refute the Evidence that They Are Not And That Cost Asymmetry and Uncertainty Make Coordination More Difficult.** Professor Rubinfeld disputes that Menactra’s and Menveo’s marginal costs differ. Instead, he also states falsely that “Professor Elhauge has not discussed the extent of cost asymmetries here.”<sup>1338</sup> In reality, I did discuss and quantify the cost asymmetry between Menactra and Menveo, showing that the marginal costs are significantly different and that the difference varied significantly over time.<sup>1339</sup> For example, I showed that in 2010, Menactra’s marginal cost was \$15.08 per dose, while Menveo’s was \$27.43 per dose.<sup>1340</sup>

741. Rather than addressing those figures, Professor Rubinfeld merely asserts without evidence that “Menactra and Menveo have similar costs” even though Menveo’s costs were in 2010 almost two times Menactra’s costs.<sup>1341</sup> Professor Rubinfeld also asserts without evidence that “cost and demand conditions were relatively stable.”<sup>1342</sup> But his conclusion that cost conditions were stable conflicts with the data showing that Menveo costs varied in different years and ranged from being 30-80% higher than Menactra costs.<sup>1343</sup> Further, his conclusion that demand conditions were stable contradicts other portions of his report that conclude (1) “On the demand side, there are natural variations and uncertainties in vaccine needs” when he was trying to argue that MCV4 demand variations and uncertainties provided an efficiency justification;<sup>1344</sup> and (2) that there was “a 31% increase in private MCV4 demand in April to September 2011” that he said constituted “a substantial increase in demand” when he was trying to rebut the argument that prices should have dropped following Menveo entry.<sup>1345</sup> It is inconsistent to argue that demand is stable to support a coordination argument

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<sup>1338</sup> Rubinfeld Report ¶576.

<sup>1339</sup> Elhauge Merits Report Table 19 (Menactra marginal costs); Table 24 (Menveo marginal costs).

<sup>1340</sup> Elhauge Merits Report Tables 19 & 24.

<sup>1341</sup> Rubinfeld Report ¶577; Elhauge Merits Report Tables 19 & 24.

<sup>1342</sup> Rubinfeld Report ¶577; Elhauge Merits Report Tables 19 & 24.

<sup>1343</sup> Rubinfeld Report ¶577; Elhauge Merits Report Tables 19 & 24.

<sup>1344</sup> Rubinfeld Report ¶ 252.

<sup>1345</sup> Rubinfeld Report ¶ 557.



and that demand is unstable when claiming efficiencies or arguing that demand increases could explain the increase in post-entry prices.

742. Finally, Professor Rubinfeld asserts that cost asymmetries and uncertainty about rival costs are not that important.<sup>1346</sup> Professor Rubinfeld cites neither any evidence nor any academic literature for these claims. Nor does Professor Rubinfeld dispute that the academic literature, including Professor Rubinfeld's own textbook, is clear that cost asymmetries and uncertainty about rival costs make coordination more difficult.<sup>1347</sup>

743. **Class Member Prices Were Not Transparent.** In my opening merits report I explained that it would be difficult to coordinate on class member prices because they were not transparent.<sup>1348</sup> Professor Rubinfeld does not dispute that it is harder to coordinate the less transparent prices are, but he does argue that class member prices were actually transparent enough to facilitate coordination.<sup>1349</sup> He is wrong for numerous reasons.

744. Professor Rubinfeld does not dispute the key facts that make class member prices nontransparent in the MCV4 market. He does not dispute that private sector prices are private information.<sup>1350</sup> Consequently, Novartis can determine a private customer's Menactra price only by asking that particular customer, and conversely Sanofi can determine a customer's Menveo price only by asking that customer. That is not necessarily reliable because some customers may not want to share rival price information with a supplier, and customers have an incentive to exaggerate the price discounts offered by rival suppliers in order to encourage firms to cut prices further.<sup>1351</sup> Asking each customer what your rival is offering them also is not practically feasible because there are over 35,000 private customers.<sup>1352</sup> [REDACTED]

[REDACTED]<sup>1353</sup> Ultimately, Sanofi's *own internal documents* explicitly stated that its

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<sup>1346</sup> Rubinfeld Report ¶¶576-577.

<sup>1347</sup> Rubinfeld Report ¶576-577, responding to Elhauge Merits Report ¶¶270-271 (citing, among other academic texts, PINDYCK & RUBINFELD, MICROECONOMICS 500 (8<sup>th</sup> ed. 2012)).

<sup>1348</sup> Elhauge Merits Report ¶272.

<sup>1349</sup> Rubinfeld Report ¶¶578-590.

<sup>1350</sup> Elhauge Merits Report ¶273.

<sup>1351</sup> Elhauge Merits Report ¶273.

<sup>1352</sup> Elhauge Merits Report ¶273.

<sup>1353</sup> Elhauge Merits Report ¶273, [REDACTED]

private prices were “difficult for the competition to understand and to copy” and “may not be transparent.”<sup>1354</sup> Professor Rubinfeld does not dispute any of this evidence.

745. Professor Rubinfeld argues that class member prices were transparent because Sanofi and Novartis knew each other’s price structures.<sup>1355</sup> But knowing Sanofi’s price *structure* does not mean Novartis knew the actual *price* charged to each class member. For example, knowing that Menactra’s contract price is higher under Sanofi’s GPO access program than under Sanofi’s 4P system program does not give Novartis any information about any particular customer’s contract price unless Novartis *also* knows that particular customer’s Sanofi contract, which is private information. Further, even if Novartis knew a particular customer’s Sanofi contract, it still would not know: (a) whether the customer ordered in a way that qualified it for Sanofi’s VaxMax discounts, (b) whether the customer got the online discount from Sanofi, (c) whether the customer was getting the prompt-pay discount from Sanofi, and (d) whether the customer was taking advantage of seasonal promotions offered by Sanofi.<sup>1356</sup> Thus, the fact that Sanofi has a rigid price structure does not indicate that Novartis knew each customer’s Menactra price.

746. Moreover, I have shown that Menveo’s predominantly volume-based price structure does not mimic Menactra’s price structure, which instead depends primarily on whether a customer is loyal to Sanofi’s Pediatric vaccines.<sup>1357</sup> The fact that the two firms used different price structures makes it implausible to think they used knowledge of each other’s price structure to price at parity to the same customers.

747. Professor Rubinfeld also argues that private prices were transparent because “Sanofi and Novartis had large sales forces that were frequently calling on customers and collecting competitive intelligence.”<sup>1358</sup> However, the documents that he cites for this claim actually only show: (1) that Sanofi had 350 salespersons and Novartis had 137 salespersons;<sup>1359</sup> (2) that a Sanofi employee asked salespeople for information on Menveo’s prices, without any evidence that the

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<sup>1354</sup> Elhauge Merits Report ¶273, citing SP 00132710 at SP 00132722.

<sup>1355</sup> Rubinfeld Report ¶¶ 572, 579-583.

<sup>1356</sup> Elhauge Merits Report ¶273.

<sup>1357</sup> Elhauge Merits Report ¶277.

<sup>1358</sup> Rubinfeld Report ¶572.

<sup>1359</sup> SP 00049075 at SP 00049081; [REDACTED]

employee received such information;<sup>1360</sup> and (3) that a Novartis stated that Sanofi raised its PBG contract prices by 3% at the beginning of 2010, which does not reveal the specific Menactra price to any particular customer.<sup>1361</sup> Notably, none of these documents actually shows Sanofi learning of the price Novartis charged a particular customer, or Novartis learning of the price Sanofi charged a particular customer. Nor would calling “frequently” on customers show that Sanofi and Novartis even attempted to ask all or most of the over 35,000 private customers what rival prices were available to each customer. Even less does it show that Sanofi and Novartis actually succeeded in systematically gathering accurate information about the rival prices available to those 35,000 private customers, each of whom had incentives to deny such information or give unreliable price information. Indeed, Professor Rubinfeld’s claim that Novartis’s monitoring efforts were sufficient to gain Menactra price information for a large number of customers is directly contradicted by Novartis deposition testimony, [REDACTED]

[REDACTED].<sup>1362</sup> It is also directly contradicted by Sanofi’s contemporaneous internal assessment that its prices were “difficult for the competition to understand and to copy” and “may not be transparent.”<sup>1363</sup>

748. Professor Rubinfeld also argues that even if Sanofi and Novartis did not know each other’s prices, they could still coordinate on price by monitoring when the other firm wins a customer away from them.<sup>1364</sup> Professor Rubinfeld is wrong on both the theory and the facts. On theory, Professor Rubinfeld is wrong that merely knowing when a customer defected to the rival would allow firms to coordinate on price. Even if Sanofi knows that one of its customers defected to Novartis, Sanofi still does not know what price Novartis offered that customer to get them to defect. Sanofi therefore would not even know whether the customer defected because Novartis cut its price or simply because the customer changed its preference about its MCV4 vaccine. Even if Sanofi suspected that the customer defected due to a price cut, Sanofi would not know what price Novartis had offered the customer, and therefore Sanofi would not know how much to cut its price to match the price cut.

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<sup>1360</sup> SP 02034323 at SP 02034324.

<sup>1361</sup> [REDACTED]

<sup>1362</sup> Elhauge Merits Report ¶273, [REDACTED]

<sup>1363</sup> Elhauge Merits Report ¶273, citing SP 00132710 at SP 00132722.

<sup>1364</sup> Rubinfeld Report ¶¶585-589.

749. Professor Rubinfeld is also factually wrong that Sanofi could immediately detect when its customers bought Menveo and that Novartis could immediately detect when its customers bought Menactra. Here, the evidence indicates that Sanofi and Novartis would in general not realize their customers were defecting until several months after the defection. The only systematic data on customers' Menveo purchases available to Sanofi was DDD data (from the third-party data aggregator IMS), which was likewise the only systematic data on customers' Menactra purchases available to Novartis. Sanofi was not able to start using IMS DDD data to track customer defections until late 2011,<sup>1365</sup> and Novartis did not obtain IMS DDD data until at least August 2011.<sup>1366</sup> Thus, neither Sanofi nor Novartis had *any* direct data on each other's sales to particular customers for at least a full year after Menveo entered the market. Further, even once the firms got IMS DDD data, the evidence indicates there was a 4-6 week lag time between customers purchasing products and it showing up in the IMS DDD data.<sup>1367</sup> Nor would the firms be able to immediately determine whether customers defected without IMS DDD data. Each individual customers' total demand for MCV4 vaccines changes over time because ACIP recommendations, patient demographics, and doctor popularity also changes over time. The fact that a customer is buying less Menactra in the current year than in the prior year therefore does not necessarily mean that it switched to Menveo.<sup>1368</sup> Moreover, many customers prefer to purchase lots of MCV4 in a few small orders throughout

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<sup>1365</sup> SP 01715090 at SP 01715094 (May 2011 Sanofi slideshow noting that an "Issue" is that "Compliance to the current Health System contract benchmark is based on previous year sales data. Drug Distribution Data (DDD) will provide a better tool to measure category share, however the data will probably not be available until late 2011. Solution: Create language within new agreements to allow for SP use IMS DDD to determine category sales compliance when available.").

<sup>1366</sup> [REDACTED]

<sup>1367</sup> SP 02057134 at SP 02057135-36 (October 17, 2011 internal Sanofi email stating "Question from the field: the Sept DDD data has been uploaded ... how is this possible if we have an approximate 4-6 week lag time? Is this through a couple of weeks in September?" Another Sanofi employee replies the data [has only been updated through Aug per email communications. Any time you see future months like Sept is due to a few days in September being reported.").

<sup>1368</sup> SP 00433919 (March 2011 internal sanofi document stating "The overall sales volume of Menactra has been slow but it is unclear as to whether it is simply product demand being low or potential defection to Menveo (former being the more likely factor). Product utilization / compliance is difficult to monitor on current PBG Dash Reports without DDD data, etc.").

the year, which would make it hard for Sanofi to tell whether a several-month drought in Menactra purchases by a given customer was due to that customer switching to Menveo or merely going through its previous stockpile of Menactra more slowly than usual.

750. Ultimately, the evidence indicates Sanofi and Novartis lacked not only systematic data on the price each other charged specific customers, but also lacked data sufficient to immediately (or even quickly) determine whether their customers had defected, let alone to determine whether they had defected based on prices. Combined, this evidence shows that Sanofi and Novartis's class member prices were far from transparent. In part due to this lack of transparency, the evidence shows that Sanofi and Novartis were not actually able to coordinate on class member prices.

751. **Class Member Price Structures Were Complex.** In my opening merits report, I also explained that it would be difficult to coordinate on class member prices because Sanofi's price structure is complex and the economic literature shows that coordination is more difficult when firms use complex price structures.<sup>1369</sup> Professor Rubinfeld does not dispute that it is more difficult for firms to coordinate on price when price structures are complex. However, he incorrectly asserts that the rigidity and formulaic nature of Sanofi's price structure must mean that it is not complex.<sup>1370</sup> He is wrong because there is nothing contradictory about a price structure being both complex and formulaic. In other words, whether a price structure is formulaic does not bear on whether it is complex. If the price formula is simple, then the price structure will be simple, and if the price formula is complex, then the price structure will be complex. Here, the formula Sanofi used to determine Menactra price was complex. Unlike a simple formula that would depend on few or no factors, Menactra's price formula depends on many different factors, such as: (1) the type of contract a customer is on; (2) the number of different Sanofi products in each order; (3) the number of Sanofi product doses in each order; (4) whether the order qualifies for a seasonal discount; (5) whether the customer qualifies for Sanofi's prompt-pay discount; (6) whether the customer qualifies for Sanofi's online discount; and (7) whether the customer is enrolled in Sanofi's flu vaccine program.<sup>1371</sup> Indeed, Sanofi's employees stated

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<sup>1369</sup> Elhauge Report ¶274.

<sup>1370</sup> Rubinfeld Report ¶579.

<sup>1371</sup> SP 00132710 at SP 00132716 (internal Sanofi slide titled "Multi-faceted pricing strategy." It indicates the various factors that affect the price a customer pays).



that ““our pricing is complex, and intentionally so,”<sup>1372</sup> and customers stated that Sanofi’s pricing was “confusing” and had too much “complexity.”<sup>1373</sup>

*4. Deposition Testimony and Internal Documents Do Not Indicate Actual Coordination on Class Member Prices*

752. In Part X.A.4 of Professor Rubinfeld’s report, he claims that documentary evidence indicates that “Sanofi and Novartis engaged in coordinated interaction.”<sup>1374</sup> As I explain below, none of the evidence that Professor Rubinfeld cites in this section supports his claim that Sanofi and Novartis *actually* coordinated on *class member* prices. Indeed, much of the evidence he cites actually refutes his claim that Sanofi and Novartis coordinated on class member prices, consistent with the data that shows there was no actual price coordination.

753. **a. Coordination on VFC, List Price, and FSS Prices Does Not Prove Coordination on Class Member Prices.** Most of the documents that Professor Rubinfeld cites in this section are about VFC, list, or FSS prices, rather than about the actual private prices that were paid by class members.

754. *VFC Prices.* [REDACTED]

[REDACTED]

<sup>1372</sup> Elhauge Merits Report ¶274, quoting SP 00132710 at SP 00132722. *See also* SP 00039660 (November 2011 internal Sanofi email chain calling its vaccine pricing “confusing”).

<sup>1373</sup> PF0061432 (August 2009 email from the PBG Pediatric Federation to a member. Pediatric Federation tells the member it has attached “some PDFs of our price grids . . . They can be a little confusing especially the Sanofi Pasteur grids given the introduction of their VaxMax Program.”); PF0065425 (January 2010 email from the PBG Pediatric Federation to a member. It states “Sanofi has a somewhat confusing VaxMax program”); SP 00435351 (Sanofi PBG questionnaire filled out by the PBG CPP. It states “It is becoming more and more difficult for the practice to truly know what they are paying. With the multiple discounts, levels and complexity combined with the different ordering people. Simpler would be better.”).

<sup>1374</sup> Rubinfeld Report ¶¶591-598.

<sup>1375</sup> Professor Rubinfeld cites two Novartis documents to support this claim. Rubinfeld Report ¶592 & n.737. [REDACTED]

[REDACTED]

[REDACTED]<sup>1376</sup>  
[REDACTED]  
Professor Rubinfeld also cites documents indicating that Novartis' goal was to match VFC prices and that it did so in one instance.<sup>1377</sup> But as I explained above and in my opening merits report, coordination on VFC prices does not indicate an ability to coordinate on the private prices that are paid by class members because it is easier to coordinate on VFC prices for at least five reasons.<sup>1378</sup> Rubinfeld has not even attempted to rebut this point.

755. *List Prices.* Similarly, several of the documents that Professor Rubinfeld says show "parity pricing" are actually about Menveo's list price being the same as Menactra's list price. For example, Professor Rubinfeld asserts that Sanofi "expressed appreciation that Novartis was not 'driving [the] market into a downward spiral,' and was 'behaving responsibly.'"<sup>1379</sup> But Professor Rubinfeld omits that the preceding sentence (in that Sanofi document) made clear that that statement was about Menveo's VFC and list price, and he also omits that the following sentence stated that Novartis has in contrast been "aggressive" in their "discounting strategy" for private customers.<sup>1380</sup> I have previously explained above in section A.1 that list price parity does not indicate that Menveo and Menactra actually coordinated on class member prices, both because it is easier to coordinate on list price than on class member prices and because it was rare for any class member to pay list price for both Menactra and Menveo.

756. *FSS Prices.* Professor Rubinfeld also asserts that Sanofi and Novartis could have coordinated on class member prices based on his incorrect premise that they coordinated on FSS prices at "parity."<sup>1381</sup> Professor Rubinfeld's factual premise is wrong: I have previously shown that Menactra and Menveo's FSS

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<sup>1376</sup> Rubinfeld Report ¶593 & n.744, citing [REDACTED]

<sup>1377</sup> Rubinfeld Report ¶596.

<sup>1378</sup> Elhauge Merits Report n. 533.

<sup>1379</sup> Rubinfeld Report ¶595, citing SP 00132710 at SP 00132723.

<sup>1380</sup> SP 00132710 at SP 00132723 ("[Menveo's] list price is the same as [Menactra's]; and even [Menveo's] VFC price is the same as [Menactra's]. We are pleased that they do not appear to be driving this market into a downward spiral. They are behaving responsibly. Where [Novartis is] aggressive is in their discounting strategy" for private customers).

<sup>1381</sup> Rubinfeld Report ¶597.

prices were often not at “parity.”<sup>1382</sup> For example, in January 2013 Menactra’s FSS price was \$6.28 higher than Menveo’s price for “Big-4” customers and \$16.85 higher for “Non-Big-4” customers.<sup>1383</sup> Moreover, even if (contrary to fact) Sanofi and Novartis had coordinated at parity on FSS prices, that would not indicate an ability to coordinate on class member prices because it is easier to coordinate on FSS prices. It is easier to coordinate on FSS prices for the same reasons that it is easier to coordinate on VFC prices – unlike class member prices, FSS prices are: (1) unitary, (2) simple, (3) regulated in a way that provides a salient point for coordination, (4) regulated in a way that bounds the range of possible coordinated prices, and (5) regulated in a way that makes transparency, saliency and, simplicity mandatory and thus more stable over time.<sup>1384</sup>

757. **b. Menveo Did Not Launch at Parity (or Near-Parity) on Class Member Prices.** Professor Rubinfeld cites documents that he incorrectly asserts show that Menveo launched at “parity” to Menactra.<sup>1385</sup> The documents that he cites are not about whether Menveo actually launched at price parties. They are instead mainly pre-entry strategic documents where a Novartis employee is *proposing* that Menveo launch at parity.<sup>1386</sup> Further, the data and documents show that Novartis actually did not adopt this price parity proposal, and instead launched Menveo at a substantial discount relative to Menactra.<sup>1387</sup> I explained in my opening merits report that Menveo’s \$[REDACTED] launch price was lower than 99.9% of the net Menactra prices in Sanofi’s database for April 2010, \$7 cheaper than Menactra’s average 4P system price, \$10 cheaper than Menactra’s average PBG price, and \$15 cheaper than Menactra’s average GPO-Access/Non-Contract

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<sup>1382</sup> Elhauge Merits Report Table 25.

<sup>1383</sup> Elhauge Merits Report Table 25.

<sup>1384</sup> Elhauge Merits Report n. 533.

<sup>1385</sup> Rubinfeld Report ¶592 (“Novartis elected to launch Menveo at parity with Menactra.”).

<sup>1386</sup> Rubinfeld Report n. 740 [REDACTED]

<sup>1387</sup> Elhauge Merits Report ¶276.



759. **d. Sanofi and Novartis Stating They Would *Prefer* If They Could Coordinate Pricing Does Not Mean They Were Actually *Able* To Coordinate.**

Many of the internal Sanofi and Novartis documents that Professor Rubinfeld cites merely state that the firms would *prefer* to coordinate or had a “goal” of coordinating.<sup>1392</sup> Similarly, Professor Rubinfeld cites Novartis deposition testimony [REDACTED]

[REDACTED]<sup>1393</sup> But evidence that Novartis merely *preferred* to coordinate does not indicate that Novartis and Sanofi were actually *able* to coordinate. *Every* firm prefers to coordinate because, as Professor Rubinfeld observes, firm profits are always higher with coordination than without.<sup>1394</sup> But obviously not every firm succeeds in coordinating. The question therefore is not whether Novartis would *prefer* to coordinate (obviously it would, like every firm would), but rather whether Novartis and Sanofi have the *ability* to coordinate. In the MCV4 market, the evidence shows both that: (1) market characteristics make it difficult to coordinate on class member prices: and (2) Novartis and Sanofi were not actually able to coordinate on class member prices. [REDACTED]

[REDACTED]  
[REDACTED]<sup>1395</sup> [REDACTED]  
[REDACTED]<sup>1396</sup> .

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

<sup>1392</sup> See, e.g., Rubinfeld Report ¶593 (“Novartis **aimed** to be viewed as a ‘trusted pricer’”)(emphasis added); Rubinfeld Report ¶595 (asserting Sanofi wanted to “avoid” “any initiatives that .... [would] serve to drive down the value of the market”) (citing SP 00132710-25 at 21, which stated “we **want** to make certain that any initiatives we undertake don’t just drive down the value of the market; another way of saying this is that **we’d rather** fight over a dose at \$100 than \$80...”)(emphasis added).

<sup>1393</sup> Rubinfeld Report ¶594, [REDACTED]

<sup>1394</sup> Rubinfeld Report ¶564.

<sup>1395</sup> Elhauge Merits Report ¶273, [REDACTED]

<sup>1396</sup> Elhauge Merits Report ¶284, [REDACTED]



760. **e. Menveo Did Use Temporary Price Reductions, Which Further Contradicts Coordination.** [REDACTED]

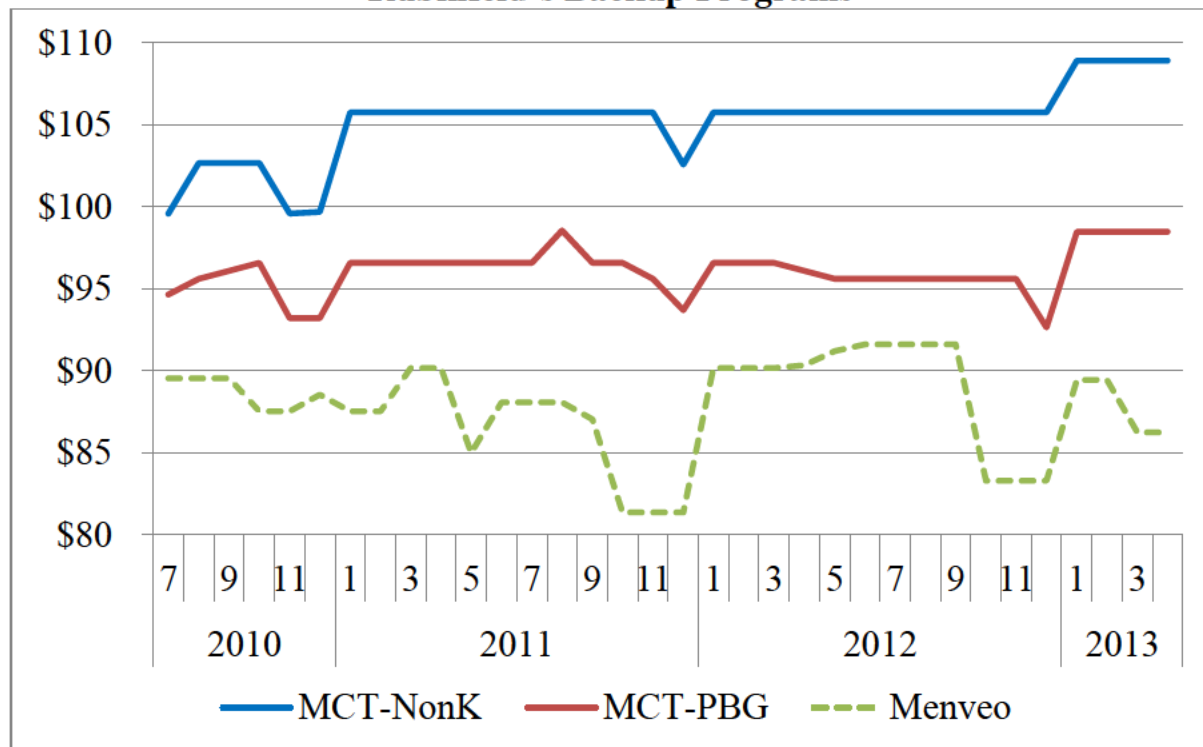
[REDACTED]<sup>1397</sup> But the evidence actually shows that: (1) Menveo *did* actually use temporary price reductions, and (2) Sanofi did *not* “simply match price” in response. Figure 4 (which is based on Professor Rubinfeld’s own backup programs using Sanofi and Novartis data) shows that Novartis actually offered significant “temporary price reductions” in October-December of 2011 and October-December of 2012. This figure also shows that Sanofi did not “match” those large price reductions, which is consistent with Sanofi transactional data showing that only 0.4% of Menactra doses purchased by class members since Menveo’s entry included individualized discounts (called “management exceptions”) on Menactra.<sup>1398</sup> Thus, Novartis’s willingness to use “temporary price reductions” and Sanofi’s refusal to match those reductions further refutes Rubinfeld’s assertion that Sanofi and Novartis coordinated on class member prices.

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<sup>1397</sup> Rubinfeld Report ¶593, citing [REDACTED]

<sup>1398</sup> “MRebut348 class mct doses with me.csv”.

**Figure 4: Median Menactra and Menveo Prices, According to Professor Rubinfeld's Backup Programs<sup>1399</sup>**



761. **f. Professor Rubinfeld Ignores the Many Sanofi and Novartis Documents Acknowledging That They Did Not Price at Parity to Class Members.** Whereas Professor Rubinfeld was unable to find *any* documents showing that Menactra and Menveo *were* priced at parity to class members, there is no shortage of documents acknowledging that Menactra and Menveo were *not* priced at parity to class members (i.e., private purchasers).

762. For example, a Sanofi employee acknowledged to a PBG member in February 2011 that “when you compare Menactra and Menveo financially, menveo will win [i.e., Menveo’s nominal price is lower than Menactra’s nominal price],” but warned the customer that he needed to consider “the pricing that he receives on all his other vaccines” because buying Menveo would jeopardize them.<sup>1400</sup>

<sup>1399</sup> “MRbut51 full rubin alm price info extended period.csv”.

<sup>1400</sup> SP 01388862-63 is a February 2011 email chain between Sanofi employees and the PBG Main Street vaccines. A Sanofi employee informs Main Street Vaccines that a customer named “Dr. Fisher” (Sanofi customer number 70013340) was buying Menveo instead of Menactra “strictly based on price.” *Id.* The Sanofi employee stated he had explained to Dr. Fisher that “when you compare Menactra and Menveo financially, menveo will win, but

Similarly, a July 2011 internal Sanofi email acknowledged that “a line-item comparison” between Menactra and Menveo “put us at a significant disadvantage (Menveo offers a savings of \$9.06 per dose),” which the email said was the reason why Sanofi needed to tell customers to “analyze Menactra vs. Menveo in the context of the overall portfolio,” i.e., to consider that Sanofi’s Bundle will make them pay higher prices for Sanofi’s Pediatric vaccines if they buy Menveo.<sup>1401</sup> Another internal Sanofi document explicitly acknowledged that Sanofi did not need to match Menveo’s lower prices because the Bundle prevented customers from switching to Menveo even when Menveo was cheaper than Menactra.<sup>1402</sup>

763. There are likewise numerous internal Novartis documents acknowledging that it did not price Menveo at “parity” with Menactra to class members. [REDACTED]

what he needs to do is look at the pricing that he receives on all his other vaccines.” *Id.* Dr. Fisher responded that he “is not loyal to anyone and will order from whoever he wants.” *Id.* Main Street vaccines then asked Sanofi to remove Dr. Fisher from the Main Street agreement, and Sanofi did. *Id.*

<sup>1401</sup> SP 00042809 at SP 00042809-10 (July 2011 internal Sanofi email chain. An email written by a Sanofi employee states “current best private-sector price for Menveo is now \$[REDACTED] . . . Aside from health system contracts with rebates and fees, our best price for Menactra is \$92.75 (PBG + VaxMax + FPP + VS + PP.) Obviously, a line-item comparison put us at a significant disadvantage (Menveo offers a savings of \$9.06 per dose.). This is why we need to analyze Menactra vs. Menveo in the context of the overall portfolio. In the pediatric market, there are very few scenarios in which we cannot overcome a very low Menveo price, given the overall value of our PBG contract offer.” Sanofi’s Senior Direct of Pricing & Reimbursement, Eric Grau, acknowledged these as “good thoughts” and emphasized that “reinforcing these portfolio selling skills with representatives may help us to close the season strong”).

<sup>1402</sup> SP 00684858-60 (internal Sanofi email chain spanning March 26-30 of 2010. A regional account manager at Sanofi, Stacy Nunziato, reports to higher-level Sanofi employees that a Sanofi customer named “University Hospitals,” which was on a 4P Sanofi contract at the time, is considering switching from Menactra to Menveo because Novartis is offering Menveo for \$3/dose cheaper. This regional account manager then recommends that Sanofi match Menveo’s price to keep the customer. A higher-level Sanofi employee, Linda Moomau, then reports that Sanofi did “not necessarily” need to match Menveo’s price and explained that to Ms. Nunziato because Ms. Moomau was able to explain to the customer “the full picture as to what Menactra means to their contract.” Another Sanofi employee, Timothy Perdue, described this as “a great example of our contract strategy being well executed and avoiding a head to head price comparison with Novartis.” Sanofi’s Senior Direct of Accounting Management, Jerry Messina, then recommended that Sanofi’s sales representatives “wrap in the impact of the UH Contract (4N) if they move to Menveo, i.e., losing discounts on Peds” and asked if the customer had “made that connection?”).

1403 A

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*5. Price Data Confirms No Coordination on Class Member Prices*

764. In my opening merits report, I tested the claim that Menactra and Menveo were priced at parity to private customers by using Sanofi and Novartis’s transaction data. As I showed, the data proved that they did not actually coordinate at “parity” prices because their prices were never the same to any given private customer in any given month.<sup>1406</sup> The data also proved that they were not priced at “approximate” parity because their prices to private customers were within \$1 of each other only 5% of the time and their most common price difference was \$9, which was a significant 10% of Menactra’s price.<sup>1407</sup> The price data further proved that there was also no coordination on any single price differential because the price differences varied widely across different private customers from -\$10 to +\$26 in a pattern that resembles a random bell-curve distribution.<sup>1408</sup> This was shown in Figure 22 from my opening merits report, which is reproduced below. The actual pricing data thus definitively refutes Professor Rubinfeld’s claim that Menactra and Menveo coordinated on price. Professor Rubinfeld’s criticisms of this direct pricing evidence are without merit, as shown next.

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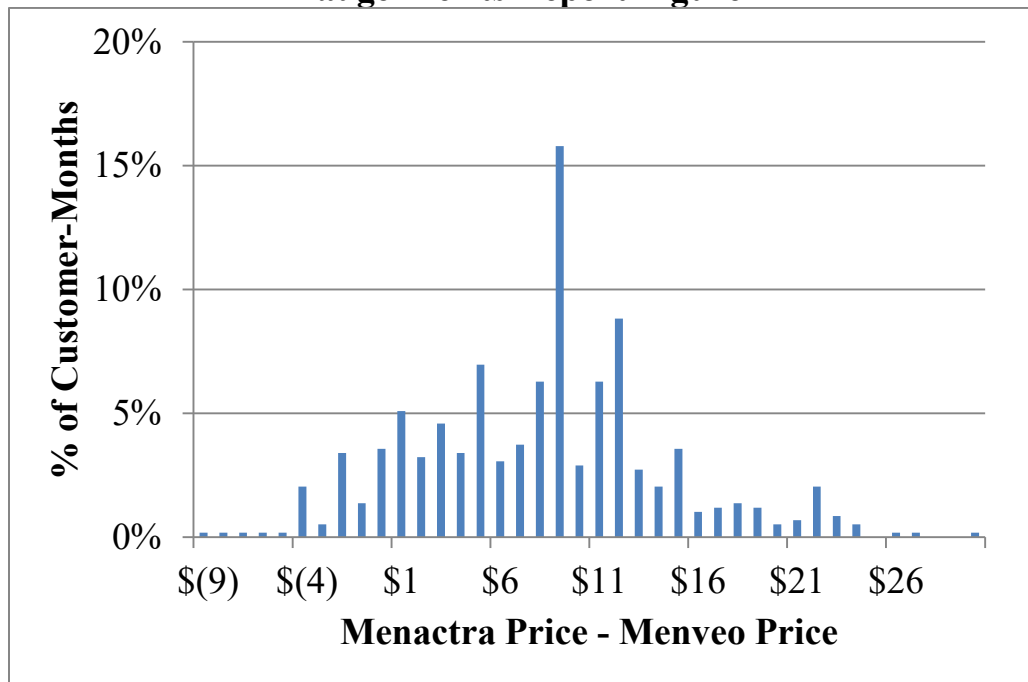
1405

1406 Elhauge Merits Report ¶279.

1407 Elhauge Merits Report ¶¶279-80.

1408 Elhauge Merits Report ¶280 & Figure 22.

**Elhauge Merits Report Figure 22**



765. **a. Professor Rubinfeld Claims Coordination Requires Only “Approximate Parity” But He Is the One Who Claimed Price Parity and the Data Contradicts Approximate Parity Anyway.** Professor Rubinfeld asserts that prices need not be at exact parity (within \$0.01) to be coordinated, but rather requires only approximate price parity.<sup>1409</sup> However, Professor Rubinfeld is the one who, tracking past Sanofi claims, contends incorrectly that Menactra and Menveo were priced at “parity.”<sup>1410</sup> His own factual claim is thus completely rebutted by data proving that the prices actually charged were in fact *never* at parity to the same customers in the same month.

766. Nor does Professor Rubinfeld cite any economic literature that defines “approximate” price parity or that supports his claim that price coordination requires only approximate price parity. Instead, without any support from the economic literature, Professor Rubinfeld adopts the assertion of a Novartis employee that price coordination requires only approximate parity of “plus or minus a couple of bucks.”<sup>1411</sup> That assertion does not reflect sound economics.

<sup>1409</sup> Rubinfeld Report ¶¶600-601.

<sup>1410</sup> Rubinfeld Report ¶592 (“Novartis elected to launch Menveo at parity with Menactra”).

<sup>1411</sup> Rubinfeld Report ¶600.



Even if we assume (contrary to evidence) that both parties understood that “approximate parity” meant “plus or minus a couple of bucks,” it would be inherently unstable. The reason is that such approximate parity would allow each firm to price a couple dollars below the other, which in turn allows the other firm to do the same in return, and so forth, thus unraveling any oligopolistic coordination. For example, suppose hypothetically that Sanofi is considering pricing Menactra at \$100. Under Professor Rubinfeld’s logic, Novartis—believing it need only price within a “couple of bucks” of Menactra to maintain a tacitly collusive outcome—could then price Menveo at \$98. But Sanofi would anticipate this, and then decide to price Menactra at \$96, still believing this price to be in line with a tacitly collusive outcome because it remains within a “couple of bucks” of the Menveo price. Novartis could then similarly drop its price to \$94. In this way, without an exact price to serve as a focal point for their tacit coordination, each firm would compete the other down to the differentiated Bertrand competition outcome I model for the but-for world. Even the economic literature on cartels—where collusion is explicit—recognizes that “It is more difficult to agree upon certain price relations than upon one single price for everybody.”<sup>1412</sup>

767. Professor Rubinfeld also fails to cite any documents that indicate that Sanofi and Novartis both understood that approximate parity meant plus or minus a couple dollars, and without that common understanding the firms could not know when the other firm was deviating from it and merited retaliation. Professor Rubinfeld’s own microeconomics textbook recognizes that when firms attempt to coordinate without a shared belief about the ultimate price to coordinate on, then if one firm ends up charging a higher price than a second firm “the first firm might view that as a grab for market share and respond in tit-for-tat fashion... A price war could then develop.”<sup>1413</sup>

768. In any event, even if we incorrectly assume for the sake of argument that Professor Rubinfeld is correct in his assertion that price coordination requires only approximate parity within \$2, the data affirmatively disproves such approximate parity. As my Figure 22 shows, Menactra and Menveo’s prices were

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<sup>1412</sup> Bjarke Fog, *How are Cartel Prices Determined?*, 5 J. OF INDUSTRIAL ECON. No. 1 16, 19 (1956).

<sup>1413</sup> PINDYCK & RUBINFELD, MICROECONOMICS 500 (8th ed. 2012) (“Suppose, for example, that cost differences or different beliefs about demand lead one firm to conclude that cooperation means charging \$50 while a second firm thinks it means \$40. If the second firm charges \$40, the first firm might view that as a grab for market share and respond in tit-for-tat fashion with a \$35 price. A price war could then develop.”).

within \$2 dollars of each other only 17% of the time. To the contrary, the most common price difference was \$9 and the price differences ranged from -\$10 to +\$26. Thus, even if Professor Rubinfeld were right that price coordination requires only approximate parity within \$2, the data still affirmatively proves there was no actual price coordination.

769. Relatedly, Professor Rubinfeld claims that firms may be able to coordinate without pricing at parity by reaching a “common understanding of how firms will compete or refrain from competing.”<sup>1414</sup> However, he does not offer any evidence or even a theory as to what other “common understanding” Sanofi and Novartis could have reached. If an economic expert who has spent a lot of time analyzing the issue (and has the benefit of hindsight) cannot even explain what the common understanding was, it is difficult to see how the firms could have possibly coordinated on that common understanding.

770. **b. Pricing at “Parity” or “Approximate Parity” Would Not Make Economic Sense Given the Bundled Penalties in Sanofi’s Contracts.** Professor Rubinfeld’s claim that Menactra and Menveo were priced at “parity” or “approximate parity” to class members fails not only because the evidence refutes that they did that, but also because it would not make economic sense for Sanofi and Novartis to do so. Because private customers face large bundled penalties on Sanofi Pediatric vaccines if they buy Menveo, Sanofi does not need to match Menveo’s price in order to keep restrained private customers. Numerous Sanofi documents acknowledge this.

771. For example, an internal Sanofi email chain from right after Menveo entered shows a lower-level Sanofi employee reporting that Novartis had offered Menveo at a discount relative to Menactra and asked permission to match Menveo price.<sup>1415</sup> A higher-level Sanofi employee responded that there was no need to

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<sup>1414</sup> Rubinfeld Report ¶601.

<sup>1415</sup> In SP 00684858-60, an internal Sanofi email chain spanning March 26-30 of 2010, a regional account manager at Sanofi, Stacy Nunziato, reports to higher-level Sanofi employees that a Sanofi customer named “University Hospitals,” which was on a 4P Sanofi contract at the time, was considering switching from Menactra to Menveo because Novartis was offering Menveo for \$3/dose cheaper. This regional account manager recommended that Sanofi match Menveo’s price to keep the customer. A higher-level Sanofi employee, Linda Moomau, responded that Sanofi did “not necessarily” need to match Menveo’s price and explained that to Ms. Nunziato because Ms. Moomau was able to explain to the customer “the full picture as to what Menactra means to their contract.” Another Sanofi employee, Timothy Perdue, described

match Menveo's price because they could convince the customer to stick with Menactra by explaining that they would lose their 4P system prices on Sanofi's Pediatric vaccines if they switched to Menveo.<sup>1416</sup>

772. Similarly, an internal Sanofi slideshow from March 2010 explains that Sanofi will "match" Menveo's price to a private customer only as a "last line of defense" and that "when a customer mentions a competitor offer" Sanofi representatives should "reinforce the . . . current portfolio benefits [i.e., the bundled penalties on Sanofi Pediatric vaccines] first" and "resort to price match only if necessary."<sup>1417</sup> Sanofi's transaction data confirms that, because of the Bundle, Sanofi almost never had to resort to price matching: only 0.4% of Menactra doses purchased by class members since Menveo's entry included individualized discounts (called "management exceptions") on Menactra.<sup>1418</sup>

773. **d. My Analysis of Class Member Menveo and Menactra Prices Used All Available Price Data on Customers Who Bought Both Menveo and Menactra.** Professor Rubinfeld says I "only included 133 customers" in my price parity analysis.<sup>1419</sup> But he does not deny at there are only 133 customers for which there is both Menveo and Menactra price data in the same month, so clearly it is not a matter of me only including some of these customers. Nor does Professor Rubinfeld point to any additional Menveo and Menactra price data that one could use for this analysis. He thus implicitly acknowledges that I have in fact used all data available.

774. **e. Professor Rubinfeld Has No Support For His Hypothetical Criticisms of My Analysis of Menactra and Menveo Class Member Prices.** Professor Rubinfeld has no actual evidence that my analysis of Menactra and Menveo class member prices is inaccurate. Instead, he posits hypothetical "problems" that "may" exist with the analysis. The data confirms that all of these hypothetical Professor Rubinfeld claims are unfounded.

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this as "a great example of our contract strategy being well executed and avoiding a head to head price comparison with Novartis." Sanofi's Senior Direct of Accounting Management, Jerry Messina, then recommended that Sanofi's sales representatives "wrap in the impact of the UH Contract (4N) if they move to Menveo, i.e., losing discounts on Peds" and asked if the customer had "made that connection?"

<sup>1416</sup> *Id.*

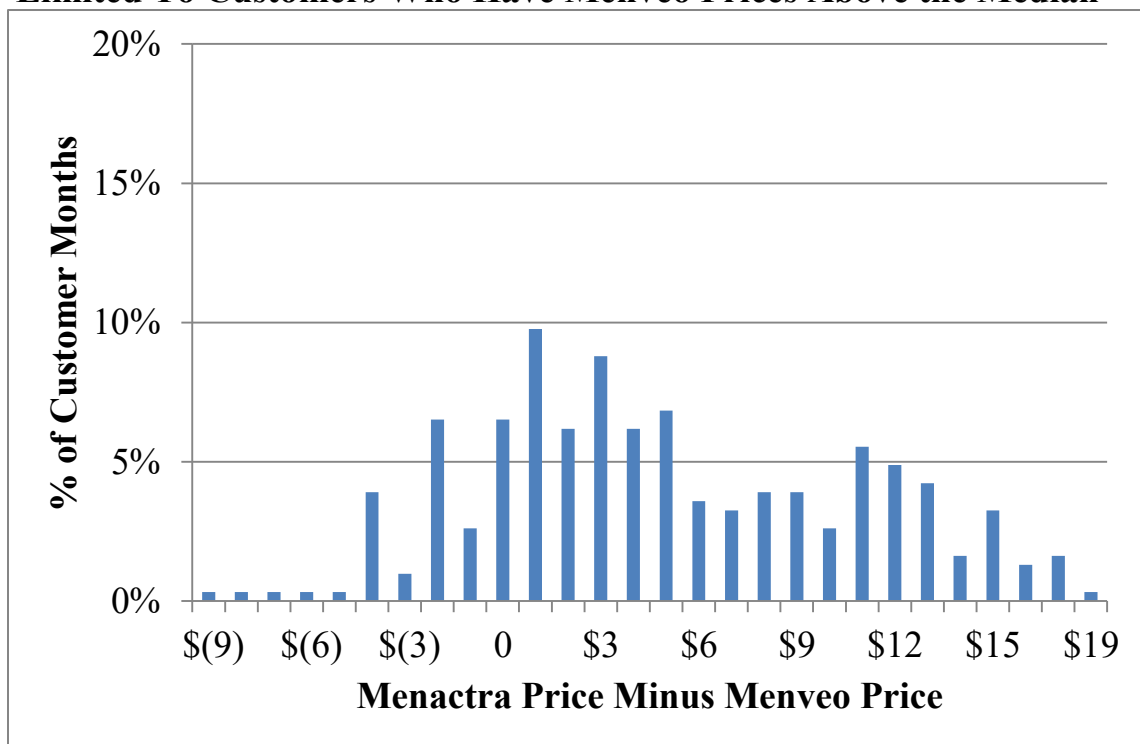
<sup>1417</sup> SP 00827165 at SP 00827168.

<sup>1418</sup> "MRebut348 class mct doses with me.csv".

<sup>1419</sup> Rubinfeld ¶603.

775. For example, Professor Rubinfeld asserts that my price disparity histograms “may capture customers who were more likely than average to face a disparity in pricing” because they “received a low price offer from a new supplier and switched.”<sup>1420</sup> Notably, Professor Rubinfeld does not offer a single example, let alone any systematic data analysis, to support his speculation that this explains the lack of price parity in the data. Moreover, the data contradicts Professor Rubinfeld’s hypothetical claim. Figure 5 limits the Menactra and Menveo price dataset to customers who paid above the median Menveo price in any given year. Even among this subset, Menactra and Menveo prices are not at parity or at approximate parity, and there is no discernible pattern to their price differences.

**Figure 5: Histogram of Disparities Between Menactra and Menveo Prices, Limited To Customers Who Have Menveo Prices Above the Median**<sup>1421</sup>



776. Professor Rubinfeld also asserts that my price analysis “would not capture the instance where a low offer from one manufacturer was countered by the incumbent supplier to the degree necessary for the incumbent supplier to retain

<sup>1420</sup> Rubinfeld Report ¶604.

<sup>1421</sup> “MRebut2276 Histogram Mvo Mct Prices (above-median mvo only).xlsx”.

the customer.”<sup>1422</sup> Again, Professor Rubinfeld does not offer a single example, let alone any systematic data analysis to support his speculation that this explains the lack of price parity in the data. Further, I have already shown (and Professor Rubinfeld does not dispute) that only 11 class members received individualized discounts on all of their Menactra purchases.<sup>1423</sup> So the data shows that these hypothetical instances, if they ever happened, would be incredibly rare. This is consistent with an internal Sanofi document stating that matching Menveo’s price would not be “proactively or often used” but instead considered a “last line of defense.”<sup>1424</sup> This same document explained that, when a customer mentioned a competitive Menveo offer, Sanofi representatives should “reinforce the Menactra argument and current portfolio benefits first” and “resort to price match only if necessary.”<sup>1425</sup> This again illustrates how Sanofi did not need to cut prices to defend its sales from Menveo because its bundled penalties (what Sanofi calls the “portfolio benefits” in this document) would keep restrained customers purchasing Menactra even when Menveo was priced at a discount.

**777. f. Menactra and Menveo Prices Are Not At Parity for Class Members Who Purchased Similar Volumes of Menveo and Menactra Either.**

Professor Rubinfeld also asserts that one should compare “whether the same types of customers with similar purchasing patterns would face similar prices for Menactra and Menveo, not whether a customer that did purchase a mix of Menactra and Menveo paid the same prices.”<sup>1426</sup> But even this type of analysis refutes Professor Rubinfeld’s claims that Sanofi and Novartis coordinated on class member prices. To test Professor Rubinfeld’s claim that “customers with similar purchasing patterns would face similar prices for Menactra and Menveo,” I compared Menveo prices to customers who bought a given amount of Menveo doses in a year to Menactra prices to customers who bought a similar amount of Menactra doses in that year.

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<sup>1422</sup> Rubinfeld Report ¶604.

<sup>1423</sup> Elhauge Merits Report ¶372, citing “Merits6000 Class Members Always ME.txt”.

<sup>1424</sup> SP 00827165 is a March 2010 internal Sanofi slideshow titled “Menactra – Menveo Price Match Process.” It describes the “Scope of Price Match” as “Not proactively or often used; last line of defense. When a customer mentions a competitive offer, representatives will reinforce the Menactra argument and current portfolio benefits first; resort to price match only if necessary. Customers will be informed that price match is available for only one order.” *Id.* at SP 00827168

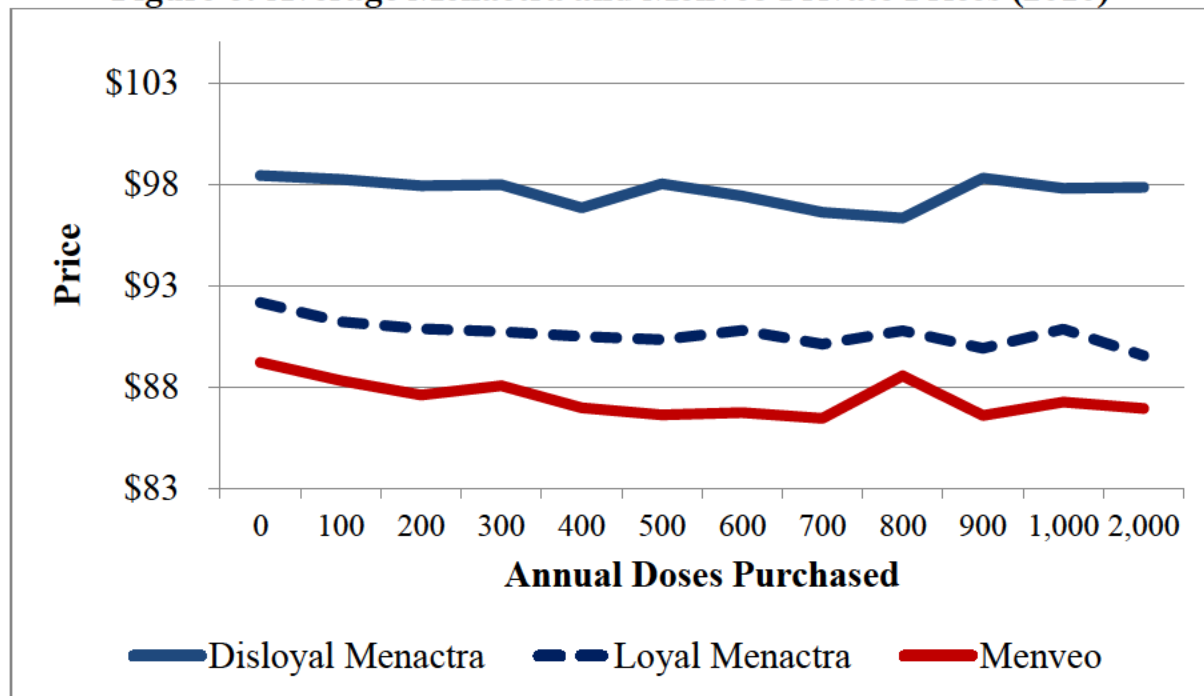
<sup>1425</sup> *Id.*

<sup>1426</sup> Rubinfeld Report ¶602.



778. For example, Figure 6 allows one to compare Menveo and Menactra's prices among customers who bought 500 doses of Menveo or Menactra (respectively) in 2010. Among customers who bought 500 doses of Menactra in 2010, those on disloyal Sanofi programs (GPO Access and No-Contract) paid on average \$98/dose for Menactra, and those on loyal Sanofi programs (PBG, GPO Performance, and 4P system) paid on average \$90/dose for Menactra. In contrast, the average Menveo price among customers who bought 500 doses of Menveo in 2010 was \$87/dose—lower than both Menactra prices. Nor are Menveo or Menactra prices the same for any of the other dose groups.

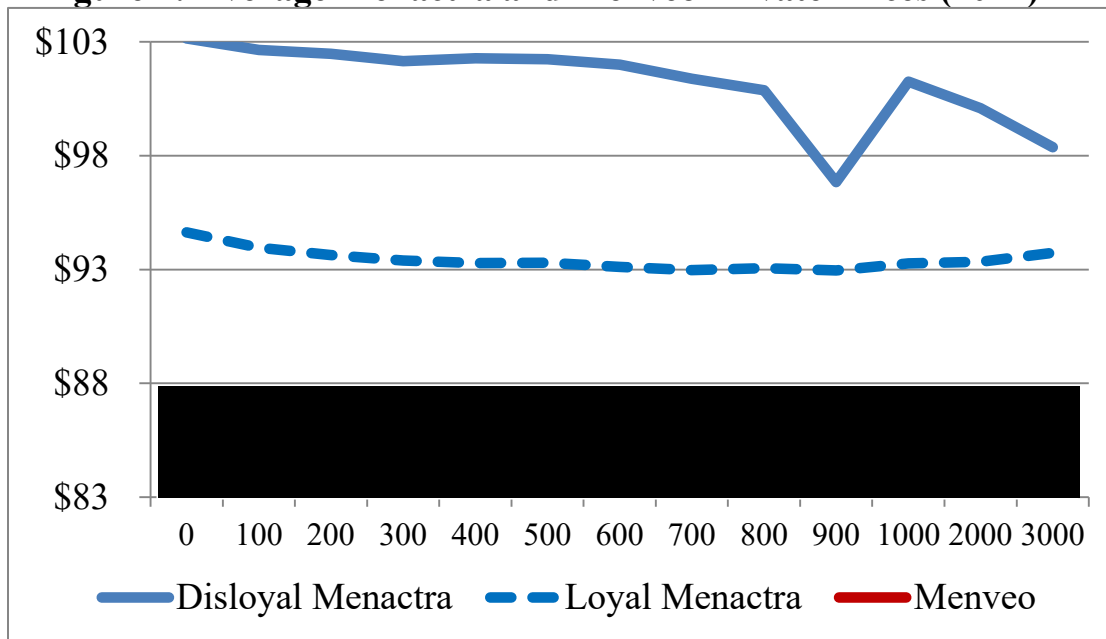
**Figure 6: Average Menactra and Menveo Private Prices (2010)<sup>1427</sup>**



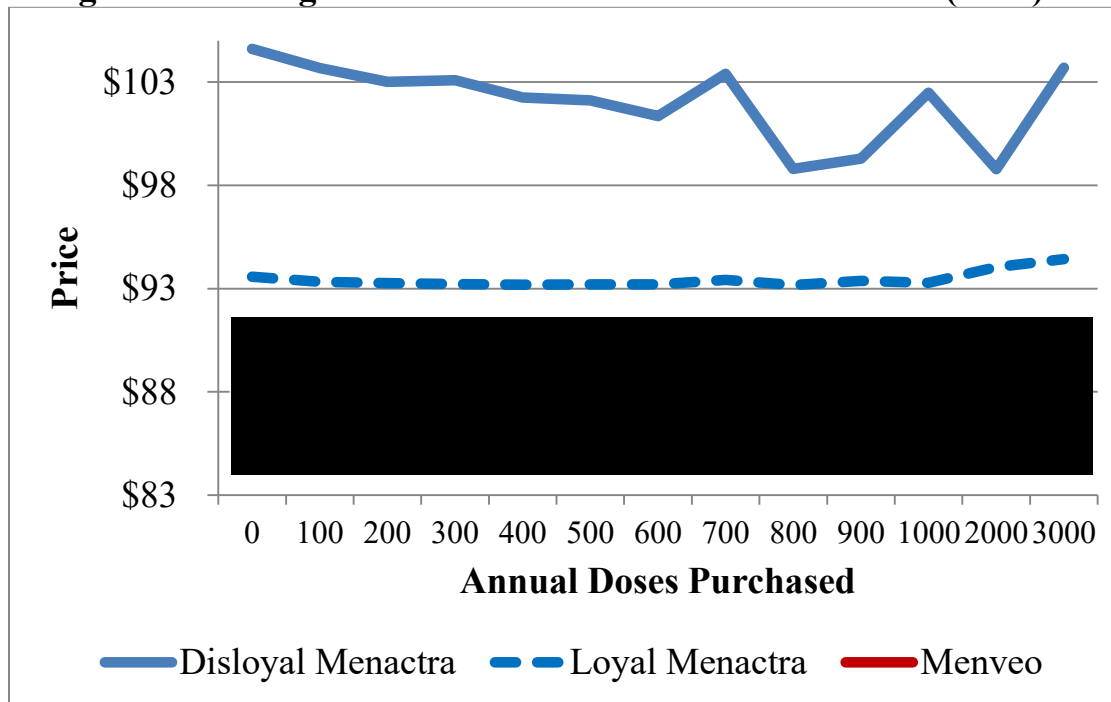
779. Indeed, the data shows that the disparity between Menveo and Menactra prices among customers who bought similar quantities grew over time. Figure 7 presents this same analysis for 2011, and Figure 8 does so for 2012. These charts thus refute Professor Rubinfeld's hypothesis that Menactra and Menveo's prices were the same or similar for customers who purchased similar amounts of Menactra or Menveo.

<sup>1427</sup> "MRebut2276 2010 mvo mct prices by dose\_bucket.csv". Annual doses purchased are limited to the period since Menveo entry for 2010.

**Figure 7: Average Menactra and Menveo Private Prices (2011)**<sup>1428</sup>



**Figure 8: Average Menactra and Menveo Private Prices (2012)**<sup>1429</sup>



<sup>1428</sup> “MRebut2276 2011 mvo mct prices by dose\_bucket.csv”.

<sup>1429</sup> “MRebut2276 2012 mvo mct prices by dose\_bucket.csv”.

780. **g. Professor Rubinfeld's Claim That Sanofi and Novartis Coordinated Because Their Price Ranges Partially Overlapped Is Unscientific and Contradicted By the Evidence.** Professor Rubinfeld asserts that his Exhibit 39 illustrates is an “analysis of the pricing structures adopted by Novartis and Sanofi” and that it “confirms Menactra and Menveo were priced at approximate parity.”<sup>1430</sup> His Exhibit 39 fails to show that Menactra and Menveo were priced at approximate parity for numerous reasons.

781. *First*, even if one assumes (contrary to fact) that Rubinfeld Exhibit 39 accurately indicates Menactra and Menveo's price ranges, it shows at most that: (1) Menactra and Menveo both priced over relatively large ranges (a range of \$6-11 range for Menactra and \$5-21 for Menveo), and (2) portions of these price ranges sometimes overlapped. For example, Rubinfeld Exhibit 39 asserts that, for PBG members, Menveo's price range in 2010 was [REDACTED], while Menactra's price range was \$92.75-\$98.55. That means that, according to Professor Rubinfeld's own Exhibit, for PBG customers about half of Menveo's price range is completely below the bottom of Menactra's price range and about a fifth of Menveo's price range is completely above the top of Menactra's price range. Similarly, Rubinfeld's Exhibit 39 indicates that Menveo's price range for Health Systems in 2010 was [REDACTED], compared to \$88.28-97.53 for Menactra, meaning that more than a third of Menveo's price range is below the minimum of Menactra's price range and a fifth of Menveo's price range is above the top of Menactra's price range. This is hardly parity.

782. *Second*, Professor Rubinfeld does not explain how the mere partial overlap of Menactra and Menveo's price ranges indicates that Menactra and Menveo are coordinating on price. By that logic, the bacon and ice cream manufacturers are coordinating on price because the price range of bacon partially overlaps with the price range of ice cream. Professor Rubinfeld does not cite a single piece of academic literature (and I know of none) that would support the proposition that some overlap in the price range of two products indicates that they have coordinated on price. Indeed, his claim here that this partial overlap shows “approximate parity” conflicts with his claim earlier his report that approximate parity meant that prices were within \$2 of each other.<sup>1431</sup> Even if the price ranges

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<sup>1430</sup> Rubinfeld Report ¶605.

<sup>1431</sup> Rubinfeld Report ¶600.

were exactly the same (suppose they were both \$80-100, for example), that would not establish Rubinfeld's claim that Sanofi and Novartis priced at "approximate parity" because the customers receiving \$80 prices from one manufacturer may be receiving \$100 prices from the other manufacturer, which would be far from price parity. Here, my analysis of the actual pricing data showed that a given customer generally did not receive Menactra and Menveo prices that were even close to each other; Menactra was on average \$9 more expensive than Menveo at any given customer.

783. *Third*, Professor Rubinfeld's Exhibit 39 artificially inflates the portion of Menveo's price range that overlaps with Menactra's by excluding Novartis's initial 15% buy-in offer upon entry and Novartis's temporary price reductions.<sup>1432</sup> For example, Professor Rubinfeld's Exhibit 39 asserts that Menveo's price range to PBG members in 2011 was [REDACTED] only because he ignores Novartis's temporary price reduction to [REDACTED] in late 2011.<sup>1433</sup> About 16% of Menveo doses purchased in 2011 were made under this promotional price,<sup>1434</sup> meaning that Professor Rubinfeld's Exhibit 39 is functionally ignoring 16% of the data. If one were to accurately include the 2011 Fall Promotion, then Professor Rubinfeld's Exhibit 39 would indicate that Menveo's PBG price range in 2011 was [REDACTED] nearly two thirds of which would be completely below his stated Menactra PBG price range of \$92-98.<sup>1435</sup> This error also distorts his 2012 price ranges, which ignore Menveo's temporary price reduction to [REDACTED] in October through December of that year,<sup>1436</sup> and would also distorted his 2013 price ranges if Novartis continued its practice of offering temporary discounts at the end of each year (Novartis data cuts off in April 2013, so we do not know whether Novartis offered a temporary discount at the end of 2013). Professor Rubinfeld does not provide any explanation why it would be appropriate to ignore the times when Menveo's

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<sup>1432</sup> Rubinfeld Exhibit 39 (explicitly noting that his chart excludes "seasonal promotions" and "Novartis's initial 15% buy-in offer upon entry").

<sup>1433</sup> [REDACTED]

<sup>1434</sup> "MRebut3939 MVO 2011 Fall Promo.csv".

<sup>1435</sup> Sanofi never offered seasonal promotions on Menactra larger than 3%, so if one adjusted Rubinfeld Exhibit 39's estimate of Menactra's PBG price range in 2011 for seasonal promotions, it would be \$90-98. Even in that case, more than half of Menveo's actual 2011 price range to PBG members (\$81-95) would be completely below Menactra's PBG price range.

<sup>1436</sup> Professor Rubinfeld's own backup calculations show this. "MRebut51 full rubin alm price info extended.csv".

price most deviated from Menactra's price when analyzing whether they priced at "approximate parity." This selective exclusion of the data that contradicts his conclusion makes Professor Rubinfeld's Exhibit 39 biased and unreliable.

784. *Fourth*, Professor Rubinfeld's Exhibit 39 artificially inflates the overlap between Menveo and Menactra's price range by ignoring Menactra's pricing to GPO-Access and Non-Contract customers. Because Menveo was generally priced at a discount relative to Menactra, the overlap in their price ranges is largest (though still only partial) for customers receiving relatively lower Menactra prices (PBG and 4P system) than for customers receiving relatively higher Menactra prices (GPO Access and Non-Contract). For example, in 2011 the List Price for Menactra was \$105.74, which was [REDACTED] higher than Menveo's highest price charged to Health Systems or PBG members according to Professor Rubinfeld's Exhibit 39. Professor Rubinfeld does not provide any explanation why it would be appropriate to ignore these customers on Sanofi GPO-Access and Non-Contract programs.

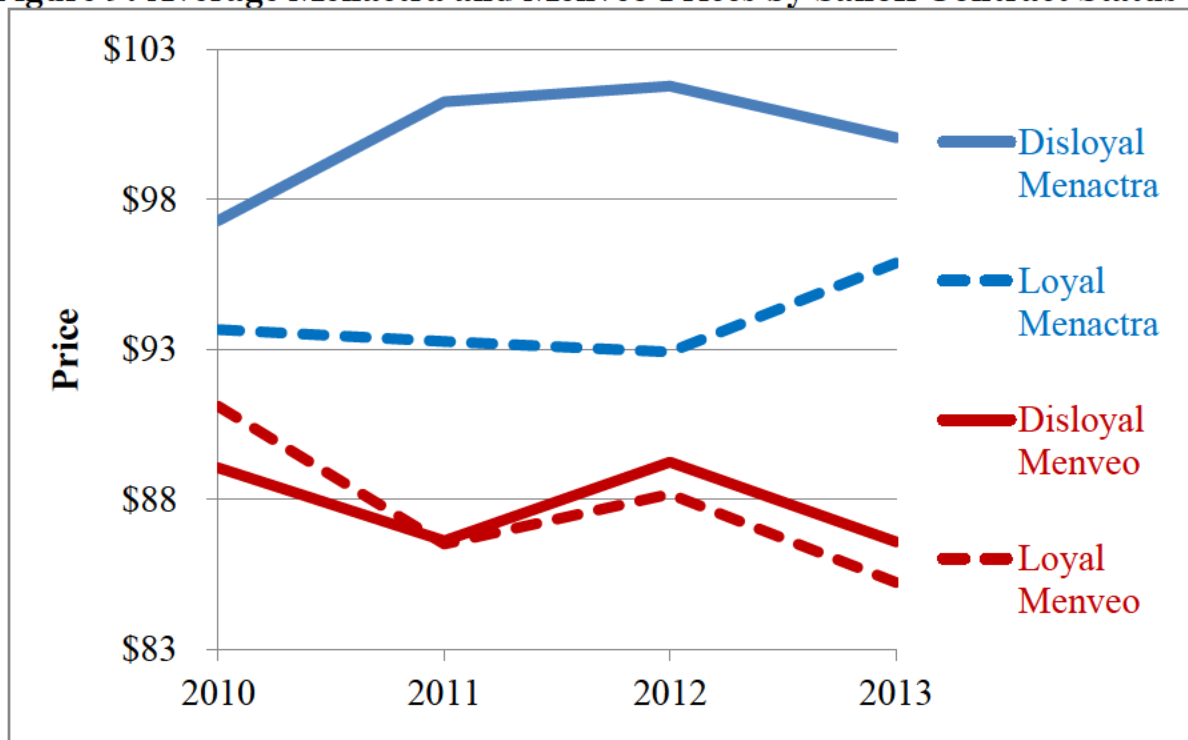
785. *Fifth*, Professor Rubinfeld's Exhibit 39 is unscientific because it relies on handpicked documents rather than systematic pricing data. Professor Rubinfeld does not explain why he relied on a handful of documents instead of the pricing data, nor does he explain how he selected the particular documents he chose to rely upon. Selectively relying on a handful of documents is not a reliable methodology because it can (and in this case did) produce a distorted and inaccurate picture of the firms' actual prices. For example, Professor Rubinfeld's choice to exclude any of the documents describing Menveo's temporary price reductions by definition causes his Exhibit 39 to indicate that Menveo was more expensive in 2011 and 2012 than it actually was and thus to inaccurately suggest Menveo's price was closer to Menactra's price than it was in reality. Because the selective exclusion of documents can bias results this way, economists prefer to rely on systematic data when it is available. Here, my analysis of the systematic data showed that Menactra and Menveo were essentially never priced at parity or "approximate parity," and Professor Rubinfeld has no analysis of the data that contradicts that.

786. *Sixth*, systematic analysis of the price data refutes Professor Rubinfeld's assertion that Menveo and Menactra were priced at "approximate parity" for customers on Sanofi's loyal contract programs (PBG and 4P system). Figure 9 shows Menactra and Menveo's average prices by year, depending on whether the customer was on a Sanofi loyal contract. "Loyal" includes customers on Sanofi PBG, GPO Performance, and 4P system programs. "Disloyal" includes customers on Sanofi GPO Access and No-Contract programs. Thus, "Loyal



Menveo” means the average Menveo price to a customer with a loyalty commitment to Sanofi. (Novartis had no loyalty contracts itself.) “Disloyal Menveo” means the average Menveo price to a customer without a loyalty commitment to Sanofi. As Figure 9 shows, Menveo and Menactra’s prices were never at parity for customers on Sanofi loyal programs or for customers on Sanofi disloyal programs. Moreover, the Figure crucially shows that Novartis charges essentially the same prices for Menveo in a given year regardless of whether the customer has a Sanofi loyalty commitment. In contrast, Menactra’s disloyal price is always much higher than Menactra’s loyal price. This is further evidence confirming that Menactra and Menveo’s price structures *are* not the same and that they do not price match. Menactra’s price structure is based on whether the customer is loyal to Sanofi vaccines, whereas Menveo’s price structure does not depend in any way on whether a customer is loyal to Sanofi vaccines.

**Figure 9: Average Menactra and Menveo Prices by Sanofi Contract Status<sup>1437</sup>**



787. **h. Professor Rubinfeld’s Three Anecdotes Do Not Indicate Coordination on Class Member Prices.** Professor Rubinfeld asserts that “many Novartis internal documents also confirm that Novartis offered the same or similar

<sup>1437</sup> “MRebut2276 mvo mct prices by sanofi loyalty k status.csv”.

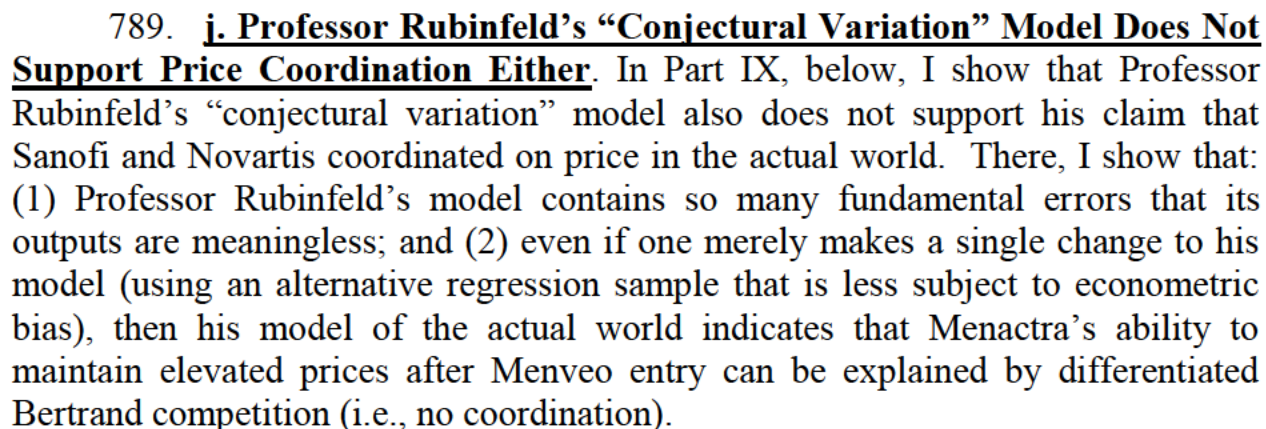
prices to the same customer.”<sup>1438</sup> But then he actually only cites documents purporting to show price parity for *three* health systems: SSM Healthcare, WellStar, and Pediatric Associates. This anecdotal approach is erroneous for the obvious reason that he is ignoring the thousands of other situations where Novartis and Sanofi were not priced at parity. Three anecdotes do not refute my systematic analysis of the parties’ data showing quantitatively that pricing at parity to class members was extremely rare. Indeed, the fact that Professor Rubinfeld can apparently only find three examples of price parity actually supports my data analysis showing that price parity was extremely rare, given that there were over 21,000 class members.<sup>1439</sup>

788. **i. Professor Rubinfeld’s Own Backup Confirms That Sanofi and Novartis Did Not Coordinate on Price.** Professor Rubinfeld’s own backup programs refute his claim that Menactra and Menveo were priced at parity or “approximate parity.” In order to run a regression he uses elsewhere in his report, Professor Rubinfeld calculated the median prices for Menveo, Menactra PBG customers, and Menactra GPO-Access/Non-Contract customers. Figure 10 below presents these prices. It shows that, even according to Professor Rubinfeld’s own backup programs, Menactra and Menveo were not priced at “parity” or “approximate parity” to class members. Instead, Professor Rubinfeld’s backup confirms the other evidence indicating that Menveo was generally priced at a significant discount from the Menactra price and that the amount of that price difference varied over time.

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<sup>1438</sup> Rubinfeld Report ¶606.

<sup>1439</sup> Elhauge Merits Report ¶369.



790. Professor Rubinfeld asserts that my differentiated Bertrand model fails to account for two “important industry characteristics”: (1) the possibility of future indications for Menveo or Menactra or follow-on meningococcal products,

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and (2) alleged capacity constraints in the MCV4 market.<sup>1441</sup> I explain below that neither of these criticisms is valid. I also observe that Professor Rubinfeld does not account for these supposed “important industry characteristics” in either of his but-for price models (his “yardstick” analysis and his “conjectural variation” model).<sup>1442</sup> It is inconsistent for him to claim that these industry characteristics must be accounted for in my but-for model but can safely be ignored in his own but-for models.

*1. Future Additional Menveo Indications and Meningococcal Products*

791. Professor Rubinfeld asserts that “Novartis’s decision to price at parity with Menactra was a rational strategy” because “Novartis did not want to price Menveo low at its launch because Novartis was planning to expand to the infant market and introduce potentially new and follow-on meningococcal products.”<sup>1443</sup> This claim does not impugn my differentiated Bertrand model, for several reasons.

792. *First*, Professor Rubinfeld’s factual premise that Menveo was priced at “parity” or “approximate parity” to Menactra is wrong, as I explained in detail above in Part VIII.A.

793. *Second*, Professor Rubinfeld’s factual premise that Novartis believed Menveo would get an infant indication when it launched is refuted by evidence showing that Novartis knew that Menveo would not be getting an infant indication by the time it launched. [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]<sup>1444</sup> Thus, before Menveo’s launch on March 24, 2010, Novartis knew that it was not getting a routine infant indication.

794. *Third*, Professor Rubinfeld does not explain how the possibility of future indications or meningococcal products would change what prices were profit-maximizing in the present. My differentiated Bertrand model does not assume that the firms irrationally set low prices, but instead specifically identifies the prices that would be *profit-maximizing* for Sanofi and Novartis without the Bundle. Professor Rubinfeld does not identify any way in which the profit-

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<sup>1441</sup> Rubinfeld Report ¶608.

<sup>1442</sup> Rubinfeld Report Part XI.C (yardsticks); Part XI.D (conjectural variation model).

<sup>1443</sup> Rubinfeld Report ¶609-611.

<sup>1444</sup> [REDACTED]

maximizing price of Menactra and Menveo should be higher than the profit-maximizing price of the possible follow-on meningococcal products, so he has provided no rationale why Sanofi and Novartis would want to sacrifice current profits (by charging too high a price on Menactra and Menveo) in order to set some precedent for future meningococcal products. Nor does Professor Rubinfeld suggest any way in which one should modify the differentiated Bertrand model to “account” for this supposedly important characteristic. Indeed, the fact that Professor Rubinfeld does not account for this “industry characteristic” in either of his own but-for models (his yardstick model and his conjectural variation model) is an indication that he ultimately does not believe it is necessary.

## *2. Capacity Constraints*

795. Professor Rubinfeld claims that Sanofi and Novartis did not have adequate production capacity to produce the higher quantities of Menveo and Menactra that would be sold in the but-for world according to my differentiated Bertrand model.<sup>1445</sup> He bases this observation on claims that vaccine suppliers face significant capacity constraints and are unable to increase supply quickly. But Professor Rubinfeld is again being internally inconsistent: he argued the exact opposite in his section on market power, where he argued that Sanofi does not have market power because “there are not high barriers to expansion” in the vaccine markets.<sup>1446</sup> For example, in his market power section, Professor Rubinfeld trumpeted the fact that GSK was able to double Pediarix’s output from 2011 to 2013.<sup>1447</sup> He is further internally inconsistent when he fails to “account” for this supposedly important industry characteristic in either of his own but-for price models (his “yardstick” model and his “conjectural variation” model).<sup>1448</sup> I show below that: (a) my differentiated Bertrand model predicts substantial overcharges even if one inaccurately assumes that the MCV4 market would not expand at all in the but-for world; (b) my predicted but-for Menactra and Menveo sales are well within Sanofi and Novartis’s production capacities; and (c) Professor Rubinfeld’s claims to the contrary are all wrong.

### **796. a. My Differentiated Bertrand Model Indicates That the Bundle Substantially Inflated Prices Even If One Conservatively (and Wrongly)**

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<sup>1445</sup> Rubinfeld Report ¶¶612-618.

<sup>1446</sup> Rubinfeld Report ¶130.

<sup>1447</sup> Rubinfeld Report Exhibit 8 backup; Rubinfeld Report ¶130.

<sup>1448</sup> See *infra* Part X (discussing Professor Rubinfeld’s conjectural variation model); Part XI (discussing Professor Rubinfeld’s yardsticks).



**Assumes that the MCV4 Market Would Not Expand In the But-for World.**

Inaccurately assuming that the MCV4 market would not expand with lower prices is conservative because it reduces Sanofi and Novartis's incentives to cut price and thus increases Sanofi and Novartis's but-for profit-maximizing prices. Nonetheless, even if one conservatively assumed that the MCV4 market demand is *perfectly* inelastic, meaning that MCV4 market demand does not depend on price *at all*, the differentiated Bertrand model would still indicate substantial overcharges, of for example 34% for Menactra in 2010 and 48% for Menveo.<sup>1449</sup> Thus, even if one accepted Professor Rubinfeld's incorrect claim that Sanofi and Novartis could not expand production, my differentiated Bertrand model would still indicate substantial overcharges.

797. **b. My Differentiated Bertrand Model's But-for Menveo and Menactra Quantities Sold are Well Within Novartis and Sanofi's Production Capacity.** I explained in my opening merits report that there were no relevant capacity constraints for Menactra or Menveo. An internal Sanofi document notes that Menactra is "available in ample quantities."<sup>1450</sup> [REDACTED]

[REDACTED].<sup>1451</sup> Further, there is no evidence that either Sanofi or Novartis ever ran out of Menveo or Menactra.

798. There is even more evidence that Sanofi and Novartis had more than enough capacity to expand if prices had decreased in the but-for world. The evidence indicates that both Sanofi and Novartis set up their manufacturing plants so that they would have enough production capacity if the CDC issued a recommendation that infants be routinely immunized with MCV4, which would have substantially increased MCV4 demand. For example, internal Sanofi documents show that Sanofi built a second Menactra production facility (completed in 2010), so that it would have enough capacity to supply the entire MCV4 market if the CDC recommended routine administrative of MCV4 to infants.<sup>1452</sup> This second Menactra production facility increased Menactra's

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<sup>1449</sup> See "MRebut10001 ButFor Prices Assumption 1 No Expansion.xlsx", indicating but-for prices in 2010 of \$62.59 for Menactra and [REDACTED] for Menveo. Actual private prices in 2010 were \$95.93 for Menactra and [REDACTED] for Menveo. Elhauge Merits Report Tables 29-30.

<sup>1450</sup> Elhauge Merits Report ¶262, citing SP 02152785.

<sup>1451</sup> Elhauge Merits Report ¶262, citing [REDACTED]

<sup>1452</sup> SP 01514551 at SP 01514552-53 (June 2008 internal Sanofi document describing answers for anticipated media questions about Menactra. One answer notes "Our new production facility is also expected to be licensed [in 2010]." In response to the question "I understand you

worldwide production capacity to at least 40 million doses per year.<sup>1453</sup> Consequently, an internal Sanofi document from June 2012 explains that, even after the CDC increased MCV4 demand by recommending routine administrative of a booster dose, Sanofi was still selling only 10 million doses of Menactra per year worldwide, which was only a quarter of its 40 million dose/year production capacity.<sup>1454</sup> This means Sanofi had an excess Menactra production capacity of at least 30 million doses per year. [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]<sup>1455</sup> By comparison, Novartis sold only 4 million doses of Menveo worldwide in 2012, and hoped to sell 6 million Menveo doses worldwide in 2013.<sup>1456</sup> This means Novartis had an excess Menveo production capacity of at least 34 million doses per year.

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have production constraints for Menactra vaccine, why is that?” the prepared answer is “We have no Menactra vaccine supply issues at this time. Initial uptake for Menactra vaccine post licensure in the U.S. far exceeded our projected demand for the product in the new marketplace. This year and last year, however, supplies exceeded demand in the US and Canada, the two countries where Menactra vaccine is currently licensed. We currently have enough vaccine to meet immunization needs for the recommended cohorts in the countries where Menactra vaccine is licensed and expect our new Menactra production facility in Pennsylvania to be licensed in the next two years. . . We expect to begin supplying Menactra vaccine from our new facility in Swiftwater, PA, in mid-year 2010 with capacity of over 20 million doses annually.” Another question asks “If you are already producing 8 million for the U.S. market without the infant/toddler cohort, how do you expect to supply any other country even with your new facility?” Sanofi’s prepared answer is “The CDC now recommends the administration of MCV 4 for those 11-18 years of age, which is why we’ve been supplying 7-8 million doses during each of the last few years. After several years of Menactra being in the marketplace, many in the adolescent age group will already have been immunized. By the time we have a license for infant/toddler and the new facility, we expect that the increased production will allow us to fulfill the entire demand in the U.S as well as expand Menactra vaccine to other countries”).

<sup>1453</sup> SP 01588369 at SP 01588388 (June 2012 internal Sanofi slide titled “Menactra internal characteristics.” It states Sanofi has a Menactra production capacity of “40M d[oses]/year of antigen while demand at 10M d[oses]/year” and thus that Sanofi has an “overcapacity situation”).

<sup>1454</sup> SP 01588369 at SP 01588388. Sanofi Profit and Loss statements indicate Sanofi sold only 7.2 million doses of Menactra in the United States in 2012. “Merits Sanofi P&Ls Combined.xlsx”.

<sup>1455</sup> [REDACTED]  
<sup>1456</sup> [REDACTED] “Sales & COGS” tab. To see worldwide Menveo doses, one must adjust the filter on the “Sales Area” column to include not only North America, but also “Latin America” and “Europe & Int’l”. Actual doses sold in 2012 are in Column M “2012 ACT” and the “target” doses sold for 2013 are in column N.

799. Given that Sanofi and Novartis each had the capacity to produce 40 million MCV4 doses per year (or 80 million doses per year combined), both had more than enough production capacity to produce the increased amount of Menveo and Menactra my model predicts they would have in the but-for world. My differentiated Bertrand model indicates that, without the Bundle. Sanofi and Novartis would have sold at most 10.8 million annual U.S. doses, which is only 1.8 million doses more than the maximum number of annual U.S. doses they actually sold with the Bundle,<sup>1457</sup> and is only 13.5% of their combined 80 million dose/year production capacity. The additional 1.8 million doses represent only 3% of Sanofi and Novartis’s combined 64 million doses per year in excess production capacity for Menactra and Menveo. Indeed, Professor Rubinfeld acknowledges that my differentiated Bertrand model indicates that but-for MCV4 quantities would be only about 20% higher than actual but-for quantities,<sup>1458</sup> which is the same percentage by which Sanofi and Novartis *actually* increased their MCV4 quantities sold when the CDC recommended a booster dose.<sup>1459</sup>

800. **c. Professor Rubinfeld’s Claims That Sanofi and Novartis Had Inadequate Capacity Are Wrong.** Professor Rubinfeld starts by asserting that Sanofi and Novartis could not expand production quickly in the but-for world based on the premise that “the vaccine market typically involves long lead times and complicated manufacturing processes that require planning years in advance.”<sup>1460</sup> This contradicts Professor Rubinfeld’s own assertions in his discussions on market power, where he claimed that Sanofi did not have market power because vaccine manufacturers could easily expand supply.<sup>1461</sup> Further, generalities about the vaccine industry do not refute evidence I presented specific to the MCV4 market showing that Sanofi and Novartis had more than sufficient capacity.

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<sup>1457</sup> “Merits11000 Actual vs Butfor Quantities Assumption 1.csv”. The year with the maximum total number of actual doses sold and the maximum amount of predicted but-for MCV4 doses sold is 2011.

<sup>1458</sup> Rubinfeld Report ¶618.

<sup>1459</sup> Elhauge Merits Report ¶320 (post-booster doses sold to class members was 3.1 million doses); Elhauge Merits Report ¶317 (pre-booster doses sold to class members was 2.6 million doses).

<sup>1460</sup> Rubinfeld Report ¶¶612-613.

<sup>1461</sup> Rubinfeld Report ¶130.

801. Professor Rubinfeld more specifically claims that Sanofi and Novartis could not produce enough MCV4 in the but-for world based on the premise that the lead time for MCV4 vaccine production was either 4-6 months or 6-8 months to increase production.<sup>1462</sup> But even if he is right about this lead time, it would not prevent Sanofi or Novartis from producing but-for MCV4 quantities (20% higher than actual quantities) because in the but-for world Sanofi and Novartis could both plan for the higher quantities sold produced in the but-for world. In the but-for world, both Sanofi and Novartis would know the Bundle was absent, and consequently that prices would be lower, making demand higher. Thus, they would know that they had to plan for greater production ahead of time. Professor Rubinfeld's claim that Sanofi and Novartis could not have produced enough in the but-for world appears to be based on the irrational assumption that in the but-for world Sanofi and Novartis would inaccurately assume that demand was the same as it would have been with an anticompetitive Bundle that did not exist and then would be suddenly surprised when demand was much higher.

802. Professor Rubinfeld's claim that Novartis would not be able to "adequately respond to sudden changes in demand",<sup>1463</sup> does not make sense because there would be no sudden changes in demand in the but-for world for Menveo. In the but-for world, Novartis would know that there never have been would a Bundle that artificially reduced demand, and Novartis would therefore have planned to produce the normal quantity it would expect would be demanded without the anticompetitive conduct. Upon Menveo entry, demand for Menveo would begin at the normal competitive level (instead of the anticompetitively reduced level) and would change at the same pace it did in the actual world (staying relatively constant in 2010, and then increasing by about 20% when the CDC recommended routine administrative of an MCV4 booster dose).

803. Professor Rubinfeld also mischaracterizes several Novartis documents when attempting to show that Novartis occasionally came close to running out of their stockpile of already-produced Menveo in the actual world. For example, Professor Rubinfeld cites a Novartis document [REDACTED]

[REDACTED].<sup>1464</sup> But Novartis did not "delay shipments" in April because of a lack of capacity. Rather, Novartis

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<sup>1462</sup> Rubinfeld Report ¶¶613-615.

<sup>1463</sup> Rubinfeld Report ¶615.

<sup>1464</sup> Rubinfeld Report ¶614, citing [REDACTED]

simply gave customers the option of choosing to split their purchase under the introductory Menveo price into two shipments if the customers preferred that to one large shipment.<sup>1465</sup> Professor Rubinfeld also cites a Novartis statement that it was experiencing “production bottlenecks in its vaccines department” generally in July 2012,<sup>1466</sup> which does not establish that Novartis had production capacity issues with Menveo because Novartis was selling over 19 other vaccines at the time.<sup>1467</sup> Professor Rubinfeld additionally cites a Novartis presentation from July 2012 noting the possibility that Novartis would not produce enough Menveo to meet demand for 4 months in mid-2013,<sup>1468</sup> but he cites no evidence indicating that Novartis actually ever ran out of Menveo in 2013, and I have seen no evidence indicating that Novartis had an inadequate supply of Menveo in 2013.

804. Ultimately, the only evidence Professor Rubinfeld cites of Novartis even coming close to running out of previously-produced Menveo is a Novartis email stating that direct orders placed from August 1st-August 3, 2012 would not be shipped until August 6, 2012 (a maximum delay of 5 days).<sup>1469</sup> [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED] 1470

805. Even accepting Professor Rubinfeld’s characterization of the evidence, he has not shown that Novartis had insufficient capacity to produce enough Menveo in the but-for world. Instead, he has at most shown that Novartis

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<sup>1465</sup> PAA00001898 (document showing the terms of the introductory Menveo “buy-in” offer. It states “Order can be split into 2 shipments (each for 50% of the product subject to the order) upon request by the applicable PBG member: the first delivery to occur before April 30, 2010 and the second delivery to occur before June 30, 2010”).

<sup>1466</sup> Rubinfeld Report ¶615, citing Novartis 2012 20-F, pp. 209 and 213.

<sup>1467</sup> Novartis 2012 20-F (available at <https://www.novartis.com/sites/www.novartis.com/files/Novartis-20-F-2012.pdf>) at 82 (“The current product portfolio of our Vaccines and Diagnostics Division includes more than 20 marketed products. In addition, the divisions’ portfolio of development projects includes more than 15 potential new products in various stages of clinical development.”).

<sup>1468</sup> Rubinfeld Report ¶615, [REDACTED]

<sup>1469</sup> Rubinfeld Report ¶615, [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] 1470



slightly under-estimated the production needed for 2012. Novartis can produce ■ million doses of Menveo per year,<sup>1471</sup> but never sold more than ■ million doses worldwide according to the data it produced in this case.<sup>1472</sup> This means Novartis never came remotely close to running out of production capacity. Like any other rational company, Novartis does not simply produce at its maximum capacity every year, but instead tries to produce only enough Menveo each year to cover its anticipated demand.<sup>1473</sup> Even before Menveo entered, Novartis knew that Sanofi's Bundle would restrain Menveo's sales,<sup>1474</sup> and Novartis took that into account when predicting how much Menveo it would sell,<sup>1475</sup> which determines how much Menveo it should produce. Novartis therefore logically produced a smaller amount of Menveo in the actual world than they would have produced in the but-for world, where they would have expected to sell the normal (not anticompetitively restrained) amount of Menveo. Unsurprisingly, Novartis's predictions of demand for Menveo in the actual world were not always perfect, and a slight underestimate of the demand for Menveo would therefore produce a slightly under-production of Menveo and the sort of 3-day shortage that Professor Rubinfeld cites. In the but-for world, Novartis would know that the Bundle did not exist and therefore would predict the amount of Menveo it would sell *without* the Bundle (likely close to what my differentiated Bertrand model predicts) and would accordingly produce a larger amount of Menveo.

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<sup>1471</sup> ■

<sup>1472</sup> See *supra* note 1456.

<sup>1473</sup> ■

<sup>1474</sup> ■

<sup>1475</sup> ■

806. Similarly, Professor Rubinfeld incorrectly asserts that Novartis could not produce 1 million doses of Menveo in 2010 in the but-for world because he claims Novartis planned to produce up to 964,000 doses of Menveo in 2010 in the actual world.<sup>1476</sup> Professor Rubinfeld is wrong because he is again incorrectly assuming that in the but-for world Novartis would produce the artificially reduced amount of Menveo it would expect to sell *with* the Bundle instead of the normal amount of Menveo it would expect to sell without the Bundle's anticompetitive restraint. Indeed, the [REDACTED] doses that Professor Rubinfeld claims Novartis had available for the U.S. in 2010 was over [REDACTED] more than the actual number of doses it sold that year,<sup>1477</sup> indicating that Novartis actually significantly overproduced Menveo relative to its predicted (and actual) demand in the actual world. In fact, Novartis over-produced Menveo so much in 2010 that its planned production (964,000 doses according to Professor Rubinfeld) was approximately equal to my estimate of Menveo's but-for sales (1.04 million doses).<sup>1478</sup> Given that Novartis would have planned for the normal level of Menveo demand in the but-for world (instead of the artificially restrained level with the Bundle), Novartis likely would have planned to produce more than 964,000 doses in 2010 in the but-for world.

807. [REDACTED]

[REDACTED]<sup>1479</sup> [REDACTED]

[REDACTED]<sup>1480</sup> [REDACTED]

[REDACTED]<sup>1481</sup> [REDACTED]

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<sup>1476</sup> Rubinfeld Report ¶614 [REDACTED]

<sup>1477</sup> [REDACTED]

<sup>1478</sup> "Merits11000 Actual vs But for Quantities Assumption 1.csv".

<sup>1479</sup> Rubinfeld Report ¶¶616-617.

<sup>1480</sup> Elhauge Merits Report ¶263, [REDACTED]

<sup>1481</sup> Elhauge Merits Report ¶263, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>1482</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>1483</sup> [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]<sup>1484</sup> A [REDACTED]

[REDACTED]

[REDACTED]. Further, Professor Rubinfeld is again failing to acknowledge that Novartis would have expected to sell more Menveo in the but-for world and therefore would have also ordered production of more Menveo in the but-for world, and that my predicted but-for Menveo sales are well within its [REDACTED] million dose per year capacity.

808. Professor Rubinfeld also argues that Novartis might be capacity constrained based on the evidence that he states indicates it can take 4-10 weeks for the U.S. agency that regulates vaccine manufacturing (CBER) to inspect and release a batch of manufactured MCV4 doses.<sup>1485</sup> But the fact that CBER must take time to inspect each batch of MCV4 vaccines does not mean that Novartis could not produce a larger quantity of Menveo in the but-for world. As noted above, Novartis can manufacture 40 million doses of Menveo per year, so it clearly could have produced larger batches (or more batches) in the but-for world. If the CBER approval process takes 4-10 weeks, then in the but-for world, Novartis would have accounted for that fact when placing its production orders, just like Novartis did in the actual world. And as shown above, Novartis was in general very good at ordering enough Menveo production in [REDACTED]

[REDACTED]<sup>1486</sup> And the closest to a supply shortage Professor Rubinfeld could find was one time in 3 years when Novartis delayed shipment by at most 5 days (and at a time when wholesalers and distributors still had ample

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<sup>1482</sup> Rubinfeld Report ¶616, [REDACTED]  
<sup>1483</sup> [REDACTED].  
<sup>1484</sup> [REDACTED]  
<sup>1485</sup> Rubinfeld Report ¶617 & n. 791.  
<sup>1486</sup> [REDACTED]

stockpiles of Menveo). Professor Rubinfeld provides no explanation why Novartis would magically lose the ability to predict its demand and order an appropriate amount of Menveo to be produced in the but-for world.

809. Professor Rubinfeld also claims that Sanofi could not meet the normal level of demand in the but-for world based on the premises that: (1) Sanofi was unable to meet demand for Menactra in 2006-2007, and (2) Sanofi is “currently [as of February 2016] facing capacity issues with Menactra.”<sup>1487</sup> Pointing out that Sanofi had trouble producing enough Menactra in 2006-2007 (three years before Menveo even entered the market) does not indicate that Sanofi had inadequate capacity from 2010 onward because it ignores the fact that Sanofi completed a second manufacturing plant in 2010 that increased its production capacity to 40 million doses.<sup>1488</sup> The only source Professor Rubinfeld cites for his vague assertion that Sanofi is “currently facing capacity issues with Menactra” is a self-serving oral conversation he had with a Sanofi employee named Brian McKenna for which there is no recording or written record and which is not confirmed by any contemporaneous documents.<sup>1489</sup> Nor could a capacity constraint in 2016 show a capacity constraint from 2010-2015, let alone indicate what capacity would have been in the but-for world where higher output would have led the firms to expand capacity if need be.

810. In sum, Sanofi and Novartis could *each* produce 40 million doses of MCV4 per year but sold at most 14 million doses in a given year worldwide,<sup>1490</sup> meaning that their excess 64 million dose/year combined *excess* production capacity was over 36 times higher than the maximum amount of increase in MCV4 doses in the but-for world relative to the actual world in any given year (1.8 million doses).<sup>1491</sup> Further, the evidence indicates that Sanofi and Novartis were both able to competently predict MCV4 demand and produce the corresponding appropriate amount of MCV4 doses. The evidence thus indicates that Sanofi and Novartis had the production capacity and the logistical competence to order enough Menactra and Menveo to be produced to satisfy the higher level of demand for MCV4 that would exist in the but-for world.

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<sup>1487</sup> Rubinfeld Report ¶¶614.

<sup>1488</sup> See *supra* note 1452.

<sup>1489</sup> Rubinfeld Report ¶¶614-615.

<sup>1490</sup> See *supra* notes 1453, 1456.

<sup>1491</sup> The maximum annual U.S. doses sold in the but-for world according to my differentiated Bertrand model is 10.8 million, in 2011. “Merits11000 Actual vs Butfor Quantities Assumption 1.csv”.

811. **d. No Evidence That Supply Conditions in MCV4 Market Would Result in Competition on Quantity Instead of Competition on Price.** One market factor that makes the differentiated Bertrand model applicable here is that the evidence indicates that the competitive interaction between the firms is Bertrand, meaning the firms interact by setting price, rather than by setting a capacity that determines output. In my opening merits report, I showed this evidence included not only evidence that Sanofi and Novartis had significant amounts of excess capacity, but also evidence that the firms' internal strategic documents always focused on setting price, not output.<sup>1492</sup> Nothing in Professor Rubinfeld's report disputes my conclusion this market is thus characterized by Bertrand competition on price rather than Cournot competition on quantity. Indeed, in his own but-for model, he models the firms as interacting by setting price rather than quantity.<sup>1493</sup>

812. None of Professor Rubinfeld's claims about Sanofi and Novartis's purported "capacity constraints" refutes the conclusion that competition in this market is Bertrand, rather than Cournot. There is absolutely no evidence in this case indicating that either Sanofi or Novartis consider capacity constraints *at all* when they are deciding how to set their prices. The firms' internal documents show that they choose their prices without any regard to potential capacity constraints, and then made sure to produce enough to cover however much they expected Menveo or Menactra customers to demand, given the prices the firms chose to offer.<sup>1494</sup> This makes sense given the facts that: (a) Sanofi and Novartis each have enormous amounts of excess production capacity for Menveo and Menactra; (b) Menactra and Menveo have long shelf-lives (1.5-2 years for Menactra and 3 years for Menveo<sup>1495</sup>), meaning Sanofi and Novartis can (and generally do) produce excess quantities of Menactra and Menveo to ensure they always have enough to

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<sup>1492</sup> Elhauge Merits Report ¶¶261-265.

<sup>1493</sup> See *infra* Part X (discussing Professor Rubinfeld's but-for conjectural variation model).

<sup>1494</sup> I showed in my opening merits report that Sanofi and Novartis's internal documents show that they competed on price, not quantity, Elhauge Merits Report ¶265, and Professor Rubinfeld does not dispute this. I showed above that they simply choose whatever price they believe is profit-maximizing, without any regard to production capacity concerns, and then make sure to produce enough to cover the demand that will result from those prices. See *supra* note 1473.

<sup>1495</sup> Elhauge Merits Report n.322.



meet the demand for whatever price they set;<sup>1496</sup> (c) the marginal costs of Menactra and Menveo are very low relative to their prices (even at but-for levels),<sup>1497</sup> meaning there is little cost to Sanofi and Novartis of stockpiling Menactra and Menveo. Because Sanofi and Novartis both have enormous amounts of excess production capacity and can both stockpile previously-produced Menveo and Menactra, the lead time on Menveo and Menactra production has no bearing on their price-setting decisions. Sanofi and Novartis therefore compete on price, not quantity.

813. Indeed, even Sanofi's own expert Professor Rubinfeld does not argue that Menactra and Menveo compete on quantity instead of price. Instead, he merely argues (incorrectly) that the but-for world MCV4 demand predicted by my differentiated Bertrand model is beyond Menveo and Menactra's production capacities.

***C. Professor Rubinfeld Is Wrong That I Did Not Calibrate My Model and That Calibration Is Impossible***

814. Professor Rubinfeld argues that I did not calibrate my model to actual market conditions and that such calibration is impossible.<sup>1498</sup> He is wrong on both counts.

***1. My But-for Model is Fully Calibrated***

815. Rubinfeld asserts that my differentiated Bertrand model is not "calibrated" in a way that assures that it is "anchored in reality."<sup>1499</sup> Professor Rubinfeld is wrong – my differentiated Bertrand is calibrated and firmly "anchored in reality" because it relies on data specific to the MCV4 Market for *every* input to the model.

816. **a. My But-for Model is Fully Calibrated Because it Relies on Data Specific to the MCV4 Market For Every Input.** A "calibrated" simulation model is one that relies on quantitative estimates of the values that affect profit-

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<sup>1496</sup> See *supra* at notes 1476, 1477 (noting that Novartis produced more than double the amount it actually sold in 2010).

<sup>1497</sup> Elhauge Merits Report ¶354.

<sup>1498</sup> Rubinfeld Report ¶619-25.

<sup>1499</sup> Rubinfeld Report ¶620.

maximizing prices in a particular market. For example, my differentiated Bertrand is fully calibrated model of the MCV4 market but-for the Bundle because it relies on the data specifically about the MCV4 market to determine all of its inputs:

- (a) Menactra and Menveo's marginal costs, which I calculate using Sanofi and Novartis's cost data;<sup>1500</sup>
- (b) the MCV4 marketwide demand curve, which I calculate using Menactra's pre-entry price and marginal cost;<sup>1501</sup>
- (c) how much unrestrained customers substitute between Menveo and Menactra in response to price differences, which I calculate using data on actual Menactra and Menveo prices and customer decisions in the FSS segment that was unaffected by the Bundle;<sup>1502</sup>
- (d) how private sector prices affect VFC prices, and how private sector shares affect VFC shares, which I calculated using Menactra and Menveo price data and data about MCV4 shares in the private and VFC segments;<sup>1503</sup> and
- (e) the fact that Menactra and Menveo do not coordinate on class member prices, which I based on extensive evidence and data that (1) market conditions made price coordination implausible and (2) they did not actually coordinate on private prices to class members.<sup>1504</sup>

817. In contrast, an “uncalibrated” model of the but-for world would simply assume theoretical values of these inputs, or to use inputs that are not specific to the market at issue. For example, Professor Rubinfeld's “yardstick” models of the but-for pricing (discussed below in Part X) are uncalibrated because his yardsticks do not use any data from the MCV4 market (they are instead about completely different markets, such as markets for distinct vaccines or non-vaccine products), and he does not make any attempt to control for any of the differences between the MCV4 market and these other markets that affect profit-maximizing prices.

818. In other words, to “calibrate” a pricing model to a particular market means simply to determine the values that affect profit-maximizing prices in that particular market. My differentiated Bertrand but-for price model is therefore fully

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<sup>1500</sup> Elhauge Merits Report Part VII.B.1-2.

<sup>1501</sup> Elhauge Merits Report Part VII.B.3.

<sup>1502</sup> Elhauge Merits Report Part VII.B.4.

<sup>1503</sup> Elhauge Merits Report Part VII.B.5.

<sup>1504</sup> Elhauge Merits Report Part VII.A.3.

“calibrated” because I have used data specific to the MCV4 market to determine every input value my but-for price model.

819. **b. My But-For Model is Calibrated According to Methods Espoused by Professor Rubinfeld’s Own Prior Academic Literature.**

Professor Rubinfeld has presented examples of calibrated merger simulation models multiple times in his academic writing. In none of these examples does he calibrate any input values that I did not calibrate in my differentiated Bertrand but-for price model.

820. Professor Rubinfeld starts the examples in his academic publications by acknowledging that the standard assumption in merger simulation is that the firms in differentiated product markets (like the MCV4 market) compete on price and do not coordinate.<sup>1505</sup> Here, I showed not only that the MCV4 market was differentiated, but also that: (a) the firms were not capacity constrained, further indicating they competed on price;<sup>1506</sup> (b) the firms internal strategic documents confirmed that they competed on price;<sup>1507</sup> (c) other market characteristics, such as the opacity and complexity of class member prices, further hindered the ability of Sanofi and Novartis to coordinate on class member prices;<sup>1508</sup> (d) Menactra and

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<sup>1505</sup> Roy J. Epstein & Daniel L. Rubinfeld, *Merger Simulation: A Simplified Approach with New Applications*, 69 Antitrust L.J. 883, 886 (2001) (“Simulation models typically assume that firms’ behavior is consistent with the Bertrand model of pricing, both pre- and post-merger.”);

Roy J. Epstein & Daniel L. Rubinfeld, *Merger Simulation with Brand-Level Margin Data: Extending PCAIDs with Nests*, 4 Advances in Economic Analysis & Policy at 3 (March 2004), available at [https://www.law.berkeley.edu/files/epstein\\_rubinfeld\\_nests\\_margins.pdf](https://www.law.berkeley.edu/files/epstein_rubinfeld_nests_margins.pdf) (“Merger simulation models for differentiated products typically assume that prices in the market can be analyzed using Bertrand assumptions.”);

Daniel Rubinfeld, *Empirical Methods in Antitrust: New Developments in Merger Simulation*, in *The More Economic Approach to European Competition Law* at 277 (2007) (“Simulation models typically assume that the behavior of firms is consistent with the Bertrand model of pricing, both pre- and post-merger.”);

Daniel Rubinfeld & Roy Epstein, *Effects of Mergers with Differentiated Products* EU Competition Directorate, October 7, 2004 at 1, available at [http://ec.europa.eu/competition/mergers/studies\\_reports/effects\\_mergers\\_involving\\_differentiated\\_products.pdf](http://ec.europa.eu/competition/mergers/studies_reports/effects_mergers_involving_differentiated_products.pdf) (“merger simulation takes as a starting point a model of equilibrium pricing (typically Bertrand), calibrates that model to the available industry data (such as prices and shares), and uses the model to predict post-merger price changes.”).

<sup>1506</sup> Elhauge Merits Report ¶¶262-264.

<sup>1507</sup> Elhauge Merits Report ¶265.

<sup>1508</sup> Elhauge Merits Report ¶¶268-274.

Menveo's price structures were not coordinated;<sup>1509</sup> and (e) Menactra and Menveo price data directly showed that they did not coordinate on price.<sup>1510</sup> Thus, I actually engage in significantly *more* analysis in support of the conclusion that the firms did not coordinate on price than Professor Rubinfeld engaged in in any of his academic publications.

821. Professor Rubinfeld's academic examples of calibrated simulation models then proceed to "calibrate" (determine the values for) the following inputs: (1) the firms' marginal costs, (2) the marketwide demand elasticity, and (3) customer substitution rates between the firms in the market.<sup>1511</sup> I have determined the values for all three of those factors in my differentiated Bertrand model using actual market data: (1) I determined the firms' marginal costs using actual Sanofi and Novartis data, (2) I determined the marketwide demand elasticity using Menactra's actual pre-entry price and marginal cost, and (3) I determined how customers substitute in the absence of bundled restraints using actual purchase data for FSS customers, who are not restrained by the Bundle. Thus, I have "calibrated" for all of the values in my price model that Professor Rubinfeld uses in the merger simulation models he presents in his academic publications.

822. **c. Calibration Here Necessarily Differs from the Calibration Used in Merger Analysis, Where Instead the Actual World Lacks the Anticompetitive Conduct.** Professor Rubinfeld argues that I did not calibrate my model because I did not calibrate the but-for model to predict actual prices in the way that is done with merger analysis.<sup>1512</sup> But he is simply ignoring the reality that typical merger analysis is prospective, so that the but-for world without the alleged anticompetitive conduct *is* the actual world (i.e., the world *without* the proposed merger). In contrast, here the actual world is the world *with* the anticompetitive conduct. In typical prospective merger analysis, one can calibrate the but-for model to actual prices, but one *cannot calibrate* the model to show it accurately predicts prices *with* the anticompetitive conduct because the merger has not yet occurred. Rather, because merger analysis is typically done while the competing

<sup>1509</sup> Elhauge Merits Report ¶277.

<sup>1510</sup> Elhauge Merits Report ¶¶279-284.

<sup>1511</sup> See, e.g., Daniel Rubinfeld & Roy Epstein, Effects of Mergers with Differentiated Products EU Competition Directorate, October 7, 2004, available at [http://ec.europa.eu/competition/mergers/studies\\_reports/effects\\_mergers\\_involving\\_differentiated\\_products.pdf](http://ec.europa.eu/competition/mergers/studies_reports/effects_mergers_involving_differentiated_products.pdf). At 61-66 (example calibrated merger simulations for the Beer and Toilet Tissue markets);

<sup>1512</sup> Rubinfeld Report ¶¶619-23.

firms are still competing and not yet merged, one must model the extent to which the alleged anticompetitive conduct (the proposed merger) will change the competitive interaction. Here, in contrast, we know the actual prices *with* the alleged anticompetitive conduct (that is with the Bundle), so we do not need to model those prices at all. Instead, we need to model what the prices would be *without* that anticompetitive conduct, and for that one cannot use market interactions that are distorted by the anticompetitive conduct. Rather one must, as I did, examine actual market interactions that are undistorted by the anticompetitive conduct and calibrate the model to them.

823. There is no reason to think, as Professor Rubinfeld asserts,<sup>1513</sup> that the Bertrand model that is the workhorse for differentiated product markets somehow applies only to merger cases and not to anticompetitive conduct cases. In both sorts of cases, the analysis is quite parallel, and the difference is simply about whether the actual or modeled world has the anticompetitive conduct. In mergers, the actual world is the world without anticompetitive conduct, and the world with anticompetitive conduct must be modeled. In this case, the actual world is the world with anticompetitive conduct, and the world without anticompetitive conduct must be modeled. This provides no reason to think that the nature of the model in differentiated product markets differs.

## 2. Calibration Here Is Not Impossible

824. Professor Rubinfeld asserts that accurate calibrating a but-for model using actual data is impossible here because the lack of a bundle in the but-for world makes it “fundamentally different” from the actual world.<sup>1514</sup> He cites no economic literature for his premise that accurate calibration is not possible when a market is affected by bundling. His premise also contradicts the approach he takes elsewhere in his report, where he purports to calibrate his own but-for model to actual pricing in the private sector that was affected by the Bundle in precisely the way that here he says cannot be done reliably.<sup>1515</sup> Moreover, even if true, his premise has no application to my analysis because I calibrate my model using a portion of the actual market that is *not* affected by the Bundle. There is thus no reason to think the nature of differentiated demand is “fundamentally different” in

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<sup>1513</sup> Rubinfeld Report ¶621.

<sup>1514</sup> Rubinfeld Report ¶624-25.

<sup>1515</sup> See Rubinfeld Report ¶712-13. See *infra* Part X (discussing Professor Rubinfeld’s but-for conjectural variation model).



the actual FSS segment and in the but-for world because in both situations buyers would not be restrained by the Bundle. In short, his premise that calibrated models should compare worlds that are not too different from each other actually indicates: (a) that I was right to use the no-Bundle market sector to model the no-Bundle world, and (b) that he is wrong to use the Bundled market sector to model the fundamentally different no-Bundle world.

825. Professor Rubinfeld's assertion that his premise is not only true, but applies even when, as here, one can use the unaffected portion of the market to calibrate the model, would also have devastating effects on for antitrust policy. According to him, "Even a properly-calibrated simulation model cannot reliably measure the impact of the challenged conduct" when that conduct has a serious market impact.<sup>1516</sup> His assertion would thus effectively immunize not only the Sanofi Bundle, but *any* serious anticompetitive conduct that is initiated before entry (so a before-and-after benchmark cannot be used) in any market that differs significantly from other markets without anticompetitive conduct (so that a reliable yardstick test cannot be performed).

#### ***D. My Marginal Cost Analysis Is Reliable***

826. Menactra and Menveo's marginal costs are one of the necessary inputs to the differentiated Bertrand model that predicts but-for prices. In my opening merits report, I used Sanofi and Novartis's available cost data to identify which costs were marginal by determining which cost categories increased in years with higher sales.<sup>1517</sup> Professor Rubinfeld's criticisms of my marginal cost analysis have no merit.

827. **Economists Regularly Use Accounting Data to Estimate Marginal Costs.** Professor Rubinfeld criticizes me for relying on what he calls "accounting data" to estimate Menactra and Menveo's marginal costs.<sup>1518</sup> But Professor Rubinfeld notably does not identify any alternative cost data one could use to estimate the firms' marginal costs. Professor Rubinfeld also fails to dispute the academic literature I cited noting that economists regularly use internal company data to estimate firm marginal costs.<sup>1519</sup> Professor Rubinfeld asserts that

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<sup>1516</sup> Rubinfeld Report ¶624-25.

<sup>1517</sup> Elhauge Merits Report Parts VII.B.1-2.

<sup>1518</sup> Rubinfeld Report ¶627.

<sup>1519</sup> Elhauge Merits Report n. 458, citing ABA SECTION OF ANTITRUST LAW, ECONOMETRICS 275 (2d ed. 2014); Gregory Werden and Luke Froeb, *Unilateral Competitive*

“accounting records often do not accurately measure economic costs and do not necessarily measure marginal costs,”<sup>1520</sup> but he offers no evidence that I accounting data I used in this case has that problem.

828. **I Used All the Data Points Available to Estimate Menactra and Menveo’s Marginal Costs.** Professor Rubinfeld also criticizes me for relying on only three data points of cost data for Menveo (for each cost category) and five data points for Menactra (for each cost category).<sup>1521</sup> But Professor Rubinfeld does not identify any other available cost data to use. Nor does he cite any academic literature that one should ignore available cost data. Nor does he provide any alternative methods of estimating the firms’ marginal costs in this case.

829. **Menveo’s Promotion Costs.** In my opening merits report, I showed that Menveo’s promotion costs historically have *not* increased in years with higher Menveo sales, which indicates that Menveo’s promotion costs are *not* marginal.<sup>1522</sup> This was illustrated in Figure 34 of my opening merits report (reproduced below). Professor Rubinfeld does not dispute that this data is inconsistent with Menveo’s marketing costs being marginal.

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*Effects of Horizontal Mergers: Theory and Application Through Merger Simulation*, in HANDBOOK OF ANTITRUST ECONOMICS 69 (Paolo Buccirossi ed. 2008)

<sup>1520</sup> Rubinfeld Report ¶555.

<sup>1521</sup> Rubinfeld Report ¶627.

<sup>1522</sup> Elhauge Merits Report ¶308, Figure 34.

**Elhauge Merits Report Figure 34: Menveo Marketing, Advertising, and Salesperson Costs Versus Doses Sold, 2010-2012<sup>1523</sup>**



830. Despite this data indicating that *none* of Menveo’s promotion costs were marginal, to be conservative I assumed that Menveo had some marginal promotion costs, equal to Menactra’s marginal promotion costs.<sup>1524</sup> Professor Rubinfeld is thus wrong when he asserts that I made “particularly strong assumptions about Novartis promotion costs” that “substantially lower his estimate of Novartis’ marginal cost.”<sup>1525</sup> The only assumption I made about Menveo’s marginal promotion cost was one that favored Sanofi, because it assumed that Novartis had higher marginal costs than the data indicates, which increases but-for prices and thus reduces damages.

831. While Professor Rubinfeld claims my marginal cost analysis is based on mere “assumption,” he does not cite any data at all for his own assumption that “Novartis’s marginal marketing costs will likely be higher than Sanofi’s.”<sup>1526</sup> Nor

<sup>1523</sup> “Merits Novartis Cost Spreadsheets Combined (2010-2012).xlsx” (2010 value annualized to account for Menveo being in market for only part of the year).

<sup>1524</sup> Elhauge Merits Report ¶309.

<sup>1525</sup> Rubinfeld Report Part ¶628.

<sup>1526</sup> Rubinfeld Report ¶¶629-630.

does he offer any economic support for leaping from his premise that Novartis' overall marketing costs would likely to be higher to his conclusion that Novartis' *marginal* marketing cost would likely be higher. Because Novartis was introducing a new product and had to overcome the anticompetitive Bundle, Novartis did have higher fixed marketing costs, as I found. That does not mean it had higher marginal marketing costs. If anything, those factors suggest that initial marketing to introduce the brand was a fixed cost of entry, which is precisely what the actual data indicates.

### ***E. My Customer Substitution Analysis is Reliable***

832. The extent to which customers would substitute between Menveo and Menactra based on price differences in the absence of bundled restraints is another key input to the differentiated Bertrand model. In my opening merits report, I used real-world data on how a group of customers who was not subject to the Bundle—those who purchase on the Federal Supply Schedule (FSS)—actually substituted between Menveo and Menactra.<sup>1527</sup> Professor Rubinfeld's criticisms of my analysis are invalid.

833. **a. FSS Purchase Decisions Are the Best Available Indicator of How Customers Would Substitute Between Menveo and Menactra in the Absence of Bundled Restraints.** In my opening merits report, I explained that one must use customer purchase decisions in a segment of the market that was not distorted by Sanofi's Bundle in order to estimate how customers would substitute between Menactra and Menveo in a but-for world where there would be no Bundle.<sup>1528</sup> Professor Rubinfeld does not dispute that using customer substitution data from a market segment distorted by the Bundle in order to model substitution in the but-for would be inappropriate. Further, Professor Rubinfeld acknowledges that FSS customers are not subject to the Bundle.<sup>1529</sup>

834. Here, the evidence indicates FSS purchasers are in fact similar to private purchasers. According to the Veteran's Administration (whose hospitals comprise a large portion of FSS purchasers), "more than half of all practicing physicians in the U.S. acquired at least a portion of their medical training in VA's

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<sup>1527</sup> Elhauge Merits Report Part VII.B.4.

<sup>1528</sup> Elhauge Merits Report ¶322.

<sup>1529</sup> Rubinfeld Report ¶634.

health care system.”<sup>1530</sup> Thus, the doctors working at the VA systems are predominantly the same doctors who go on to work in the private segment of the market.

835. Professor Rubinfeld lists several supposed “differences” between FSS purchasers and private purchasers, but fails to explain why any of those differences would bias my results against Sanofi.<sup>1531</sup> There are an infinite number of “differences” between any two groups – for example the percentage of FSS doctors with blue eyes likely differs slightly from the percentage of private doctors with blue eyes. But these “differences” are completely irrelevant if they do not cause customer substitution patterns to differ between FSS purchasers and private purchasers. For example, Professor Rubinfeld provides no theory (let alone any evidence) of why the fact that FSS purchasers are government entities should make their decisions about how to substitute between Menveo and Menactra different than private purchasers.<sup>1532</sup> Professor Rubinfeld relatedly asserts, again without any evidence that FSS customers “may” be serving a “different demographic” than the patients of a typical pediatrician, again without any theory as to why this would, even if true, have an effect on customer substitution rates.<sup>1533</sup> Professor Rubinfeld also notes that the military requires its recruits to obtain meningococcal vaccines,<sup>1534</sup> but mandatory vaccinations are common in the private sector too, where many schools and states require children to receive meningococcal vaccines.<sup>1535</sup> In sum, Professor Rubinfeld has provided no theory or evidence in support of his claim that FSS purchasers’ substitution patterns will not be representative of private purchasers’ substitution patterns.

836. Professor Rubinfeld also notes that Federal Supply Schedule purchases accounted for 6% of Menactra doses and 2% of Menveo doses,<sup>1536</sup> but does not appear to argue that this actually causes any econometric bias. The amount of data available for analysis is this small solely because Sanofi distorted

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<sup>1530</sup> See U.S. Department of Veterans Affairs, Physician Brochure, available at [http://www.vacareers.va.gov/assets/common/print/Physician\\_Brochure.pdf](http://www.vacareers.va.gov/assets/common/print/Physician_Brochure.pdf).

<sup>1531</sup> Rubinfeld Report ¶643-44.

<sup>1532</sup> Rubinfeld Report ¶644.

<sup>1533</sup> Rubinfeld Report ¶644.

<sup>1534</sup> Rubinfeld Report ¶643.

<sup>1535</sup> SP 02074829 (“MENINGE” tab) (internal Sanofi document indicating the MCV4 vaccination is required in many states for all college students and/or all middle-school (6<sup>th</sup>-7<sup>th</sup> grade) students).

<sup>1536</sup> Rubinfeld Report ¶635.

customer decisions in the rest of the market with bundled penalties. Further, it is routine for economists to use a sample of the overall population in econometric analysis.<sup>1537</sup>

837. **b. It is Correct to Focus on the Time Periods Closest to the FSS Price Changes.** Professor Rubinfeld criticizes me for focusing my regression analysis on two 4-month periods when the relative differences between Menveo and Menactra prices to FSS customers changed.<sup>1538</sup> However, I explained that I limited the data in this way to minimize any econometric bias due to changing customer preferences,<sup>1539</sup> and Professor Rubinfeld does not dispute that this methodology helps minimize that potential bias. Further, Professor Rubinfeld cites no reason why my methodology would cause any econometric bias.

838. I showed in my merits report that these 4-month windows captured the lion's share of customers (weighted by FSS) because 91% of FSS purchasers ordered MCV4 vaccines at least once every two months.<sup>1540</sup> Professor Rubinfeld observes that I am still not capturing all customers' purchase decisions, but provides no theoretical reason (or evidence) that this would cause any econometric bias.<sup>1541</sup> In response to my analysis showing that the damage estimates are essentially the same if one uses 6-month windows,<sup>1542</sup> Professor Rubinfeld asserts that even the six-month window (which he calls the 3-month window, as in 3

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<sup>1537</sup> WOOLDRIDGE, INTRODUCTORY ECONOMETRICS 763 (3d. ed. 2006) ("Statistical inference involves learning something about a population given the availability of a sample from that population. By population, we mean any well-defined group of subjects, which could be individuals, firms, cities, or many other possibilities. By "learning," we can mean several things, which are broadly divided into the categories of estimation and hypothesis testing. A couple of examples may help you understand these terms. In the population of all working adults in the United States, labor economists are interested in learning about the return to education, as measured by the average percentage increase in earnings given another year of education. It would be impractical and costly to obtain information on earnings and education for the entire working population in the United States, but we can obtain data on a subset of the population. Using the data collected, a labor economist may report that his or her best estimate of the return to another year of education is 7.5%...".)

<sup>1538</sup> Rubinfeld Report ¶636.

<sup>1539</sup> Elhauge Merits Report ¶330.

<sup>1540</sup> Elhauge Merits Report ¶330.

<sup>1541</sup> Rubinfeld Report ¶637.

<sup>1542</sup> Elhauge Merits Report n. 525.



months before the price change and 3 months afterward) “could” miss some orders.<sup>1543</sup>

839. Professor Rubinfeld then runs my FSS regression using 8-month windows (4 months before the price change and 4 month afterward), and claims my regression results are unreliable because the predicted damages are lower with the 8-month window.<sup>1544</sup> But because Professor Rubinfeld has not even disputed my point that using shorter windows reduces bias from confounding factors, and because he has not provided any theory as to how using longer windows would reduce bias, all he has really shown is that introducing more econometric bias into the regression makes the results less accurate in a way that happens to favor his client. That is not a valid criticism of my analysis. Further, even Professor Rubinfeld admits that using 8-month windows still indicates that the Bundle has substantially inflated Menactra and Menveo prices.<sup>1545</sup>

840. Moreover, although Professor Rubinfeld trumpets his 8-month finding in text, he buries in a footnote an admission that, if he uses a 12-month window (6 months before and 6 after), his estimated overcharge rises above his 8-month finding by 20 percentage points for Menactra and 15 percentage points for Menveo, ending up only 10 percentage points below my estimates.<sup>1546</sup> Given his own assertion that using a larger window with more data is more accurate, his own methodology provides no grounds to emphasize the 8-month result that is more favorable to his client over the 12-month result that should be more accurate according to his methodological claim. Comparing his 8-month and 12-month findings also affirmatively disproves any claim that a shorter time window is inherently biased in favor of increasing the overcharge.

841. **c. It Is Correct to Treat Each Dose as a Separate Choice.** In my customer substitution regression dataset, a purchase of 100 doses of Menactra is represented as 100 decisions to use Menactra. A customer that purchases 100 doses of Menactra has in fact chosen to use Menactra on 100 patients, and therefore it is appropriate to treat that as 100 choices to use Menactra.

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<sup>1543</sup> Rubinfeld Report ¶638.

<sup>1544</sup> Rubinfeld Report ¶638.

<sup>1545</sup> Rubinfeld Report ¶638.

<sup>1546</sup> Rubinfeld Report n.811.

842. Professor Rubinfeld asserts it is “inappropriate” to weight by doses based on the premise that doing so “gives undue weight to a relatively small set of customers and gives a false precision to the results of his model.”<sup>1547</sup> But weighting by doses gives each customer the precise amount of weight it is due. Because the purpose of this regression is to determine the impact of a price cut on firm output, the correct unit to look at is doses, not customers. For example, if cutting price by 10% would increase a hypothetical firm’s customers by 50% but increase overall output by only 1%, that firm would not cut prices (because doing so would be unprofitable) but focusing on the number of customers would inaccurately indicate that they would cut price by 10%.

843. Professor Rubinfeld neither cites any academic literature stating that my methodology was inappropriate, nor provides any logical reason why it is wrong to weight bigger customers more than smaller customers. Weighting all customers equally produces regression results that favor Sanofi slightly more, but choosing a methodology based on which party it favors is not appropriate. In any event, even if one weights all customers equally, Professor Rubinfeld’s own backup shows that the differentiated Bertrand model predicts substantial overcharges of 28% for Menactra and 39% for Menveo.<sup>1548</sup>

844. **d. Supposed “Little” Variation in FSS Prices Is Not an Econometric Problem.** Professor Rubinfeld also criticizes my FSS customer substitution analysis on the basis that he believes there “are very few price differences in the FSS segment.”<sup>1549</sup> But Professor Rubinfeld notably fails to cite any academic literature stating this is a problem, nor provides any logical reason why this would cause any econometric problems. Nor does Professor Rubinfeld provide any alternative option that he believes would increase the amount of price variation. Obviously the amount of price variation in the FSS segment in the actual world is a fixed fact of reality that cannot be changed.

845. **e. Professor Rubinfeld Has No Support for His Claim that My FSS Regression Does not Adequately Control for Changes in Customer Mix.** Professor Rubinfeld observes that some of the FSS customers in the first time period analyzed (around the January 2012 price change) are not in the second time

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<sup>1547</sup> Rubinfeld Report ¶639.

<sup>1548</sup> “Para640\_not\_dose\_expanded\_ave\_oc.csv”, from Professor Rubinfeld’s backup.

<sup>1549</sup> Rubinfeld Report ¶641.

period analyzed (the January 2013 price change), and vice versa.<sup>1550</sup> But once again, Professor Rubinfeld fails to provide even any *theoretical* reason why this would cause any econometric bias, let alone any evidence. There is no reason to believe that the customers who happened to purchase MCV4 vaccines in one period but not the other would have significantly different preferences from the customers that purchased in both periods. And Professor Rubinfeld does not propose or present any alternative methodologies that he believes would “fix” this supposed problem. This is just yet another unsupported red herring provided by Professor Rubinfeld.

***F. Immunization Rates Implied by Differentiated Bertrand Model Are Not Implausible***

846. Because MCV4 prices would be significantly lower in the but-for world, MCV4 output would be higher also.<sup>1551</sup> Professor Rubinfeld claims that the market would not expand as much as my model predicts, and that such an expansion would result in “implausible” MCV4 vaccination rates. Both of his arguments fail.

847. **a. Data and Other Evidence Indicate MCV4 Market Would Expand in But-for World.** Markets that are more “elastic” expand in output more for a given price decrease. Economists regularly use the Lerner inverse elasticity to estimate the elasticity of a given market, which relies on data on a 100% monopolist’s price and marginal cost.<sup>1552</sup> Here, I used the Lerner inverse elasticity rule to determine the demand elasticity of the MCV4 market based on Menactra’s price and marginal cost right before Menveo entry, when Sanofi was still a 100% monopolist of the MCV4 market.<sup>1553</sup> Although Professor Rubinfeld suggests that my “assumption of linear demand ... substantially overstates the demand effect,”<sup>1554</sup> he provides no analysis or evidence to support that suggestion. Assuming linear demand was actually a conservative assumption because it

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<sup>1550</sup> Rubinfeld Report ¶642.

<sup>1551</sup> Elhauge Merits Report ¶359.

<sup>1552</sup> Elhauge Merits Report n. 504, citing JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 66 (1988). Economists often infer aggregate demand elasticities from profit margins in merger simulations as well. See ABA SECTION OF ANTITRUST LAW, ECONOMETRICS 283 (2005) (“the value of the [aggregate demand elasticity] price coefficient can also be inferred from the price-cost margin of any major brand”).

<sup>1553</sup> Elhauge Merits Report Part VII.B.3.

<sup>1554</sup> Rubinfeld Report ¶ 645.

produces higher but-for price estimates (and a lower overcharge) than if one assumes a constant elasticity demand curve, which is the main alternative used in the economic literature.<sup>1555</sup>

848. Professor Rubinfeld does not dispute my use of the standard Lerner inverse elasticity rule for calculating demand elasticity. Nor does he propose any alternative economic method of estimating the demand elasticity of the MCV4 market. Instead, Professor Rubinfeld argues that ACIP recommendations and insurance coverage makes patients “price insensitive,”<sup>1556</sup> and then he asserts that those arguments support a vague non-quantitative assertion that it is “reasonable to expect the marketwide price elasticity for MCV4 to be low.”<sup>1557</sup> His analysis ignores the fact that, by using a standard method for estimating demand elasticity, I already quantitatively accounted for any factors (such as ACIP recommendations and insurance coverage) that might lower the extent to which price affects MCV4 vaccine purchase decisions.<sup>1558</sup> I just did so in a way that produced an actual elasticity number that reflected the precise extent to which such factors lowered the extent to which demand was affected by price. Professor Rubinfeld also ignores the fact that even his conclusion that the demand elasticity was likely “low” is perfectly consistent with my quantitative estimate that the MCV4 market demand elasticity before Menveo entry was only 1.24, which is quite low given that no monopolist ever prices below an elasticity of 1.0.<sup>1559</sup> In short, my use of a standard method for calculating demand elasticity already accounted for the factors he mentions and produces a low estimate of demand elasticity. My method simply quantifies just how low the demand elasticity was, rather than relying (as Professor Rubinfeld does) on vague and unsubstantiated assertions that the demand elasticity must be too low for the demand expansion that my calculation predicts.<sup>1560</sup>

849. Professor Rubinfeld’s claim that ACIP recommendations and school mandates mean that parents buy vaccines regardless of cost, and are thus price

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<sup>1555</sup> ABA Section of Antitrust Law, *Econometrics* 289 (1<sup>st</sup> ed. 2005) (“The different curvature properties of AIDS and isoelastic demand cause those demand forms to yield larger price increase predictions than the linear and logit models.”).

<sup>1556</sup> Rubinfeld Report ¶¶647-649.

<sup>1557</sup> Rubinfeld Report ¶¶647-49.

<sup>1558</sup> Rubinfeld Report ¶¶647-649 (arguing that MCV4 purchase decisions are affected in part by insurance coverage and ACIP recommendations).

<sup>1559</sup> Elhauge Merits Report ¶317; ELHAUGE, *U.S. ANTITRUST LAW & ECONOMICS* 189 (2d ed. 2011); CARLTON & PERLOF, *MODERN INDUSTRIAL ORGANIZATION* 93 (3d ed. 1999).

<sup>1560</sup> Rubinfeld Report ¶¶647-49.

insensitive,<sup>1561</sup> also contradicts his own admission that “transportation costs” can “prevent an individual from receiving a vaccine.”<sup>1562</sup> If the need to pay for transportation can reduce demand, then clearly higher prices for the vaccine can. Thus, his admission about transportation costs by definition admits that vaccine demand is sensitive to costs that are borne by the parents or patients, which will apply whenever they are uninsured or have copayments or coinsurance.<sup>1563</sup>

850. Professor Rubinfeld claims that the Affordable Care Act (ACA) eliminated any MCV4 market demand elasticity when it mandated that all individuals enrolled in a new health plan after September 23, 2010 must have access to ACIP-recommended vaccines without any co-payments or co-insurance payments.<sup>1564</sup> But obviously this mandate applied to few patients in 2010, and the source that he himself cites indicates that the percentage of insured workers under grandfathered plans (where copayments and coinsurance were allowed) was 56% in 2011, 48% in 2012, and 36% in 2013.<sup>1565</sup> Thus, in each year, a large fraction of those covered by insurance could face copayments and coinsurance that would make them price sensitive, and the marginal buyers are the ones who affect a firm’s demand elasticity. Further, from 2010 to 2013, the percentage of the population that was uninsured ranged from 13-15%,<sup>1566</sup> so they are not covered by this law and would be even more price sensitive.

851. Nor is Professor Rubinfeld correct when he asserts that “A lower manufacturer price would not influence the decision of parents to vaccinate their children when there is no patient co-payment.”<sup>1567</sup> His assertion ignores the reality that, even if the parents do not have to pay anything, the price of vaccines still influences the willingness of medical providers, insurers, and governmental organizations to encourage parents to vaccinate their children.<sup>1568</sup>

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<sup>1561</sup> Rubinfeld Report ¶647.

<sup>1562</sup> Rubinfeld Report ¶649.

<sup>1563</sup> Rubinfeld Report ¶649.

<sup>1564</sup> Rubinfeld Report ¶648.

<sup>1565</sup> “2014 Employer Health Benefits Survey – Section Thirteen: Grandfathered Health Plans,” The Henry J. Kaiser Family Foundation at Exhibit 13,3 (September 10, 2014), <http://kff.org/report-section/ehbs-2014-section-thirteen-grandfathered-health-plans/>. This paper is cited at Rubinfeld Report n.822.

<sup>1566</sup> U.S. Census, “Health Insurance Coverage in the United States: 2014” at Figure 1 (issued Sept. 2015).

<sup>1567</sup> Rubinfeld Report ¶648.

<sup>1568</sup> For example, Professor Rubinfeld explicitly acknowledges that ACIP recommendations affect vaccine demand, Rubinfeld Report ¶557, and ACIP considers “cost-

852. Moreover, Professor Rubinfeld's admission that many vaccines currently have low immunization rates (such as the 25% immunization rate for the complete series of MCV4 vaccines<sup>1569</sup>) contradicts Professor Rubinfeld's claim that vaccine demand is "price insensitive."<sup>1570</sup> If patients were really price insensitive, then demand elasticity would be zero, the MCV4 immunization rate would already be 100% and the Menactra price before Menveo entry would have been infinite. There is no dispute that the MCV4 immunization rate is nowhere close to 100% (only 25% of patients receive the complete series, according to Rubinfeld Exhibit 40) and that Menactra's price was not infinite before Menveo entry.

853. In any event, even if one conservatively assumed that the MCV4 market demand elasticity were zero, meaning that MCV4 market demand does not depend on price *at all*, the differentiated Bertrand model would still indicate substantial overcharges of, for example 34% for Menactra and 48% for Menveo in 2010.<sup>1571</sup> This is respectively 90% and 98% of the overcharge estimated by my model in 2010 (and thus would nonetheless produce the vast majority of the damages my model estimates).<sup>1572</sup> The reason is that even if market demand for MCV4 were zero because providers or patients would not forgo MCV4 vaccine entirely in response to price increases, providers or patients would still be willing to shift MCV4 vaccine purchases between Menactra and Menveo in response to price differences between them. The lion's share of the overcharge is driven by such but-for price competition between the firms, rather than by my (quite low) estimate of demand elasticity. Accordingly, even under the incorrect conservatively assumption that the MCV4 market demand elasticity was zero, the

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effectiveness" when determining whether to recommend routine immunization of a particular vaccine. Jane J. Kim, *The Role of Cost-Effectiveness in U.S. Vaccination Policy*, 365 N Engl J Med 2011, 1760-1761 (2011) available at <http://www.nejm.org/doi/full/10.1056/NEJMp1110539?viewType=Print>. ("the Advisory Committee on Immunization Practices (ACIP), an independent expert advisory board, . . . formally includes cost-effectiveness among the types of evidence it considers when making vaccine-policy recommendations to the Centers for Disease Control and Prevention (CDC)").

<sup>1569</sup> Rubinfeld Exhibit 40.

<sup>1570</sup> Rubinfeld Report ¶647.

<sup>1571</sup> See "MRebut10001 ButFor Prices Assumption 1 No Expansion.xlsx", indicating but-for prices in 2010 of \$62.59 for Menactra and [REDACTED] for Menveo. Actual private prices in 2010 were \$95.93 for Menactra and [REDACTED] for Menveo. Elhauge Merits Report Tables 29-30.

<sup>1572</sup> Elhauge Merits Report Tables 29-30.



aggregate overcharge through April 2016 would be \$522 million on Menactra and \$137 million on Menveo.<sup>1573</sup>

854. **b. My Predicted But-for MCV4 Immunization Rates Are Not Unrealistic.** Professor Rubinfeld incorrectly asserts that “my but-for model implies an unrealistic immunization rate that may be impossible, given the size of the U.S. population.”<sup>1574</sup> He claims that the but-for output predicted by my differentiated Bertrand model would result in a 95% vaccination rate for non-VFC patients,<sup>1575</sup> but he makes three calculation errors, each of which leads him to overestimate the but-for vaccination rate: (1) he incorrectly assumes that 100% of MCV4 vaccine output is used to immunize 11-18 year olds; (2) he underestimates the total population of 11-18 year olds; and (3) he underestimates the non-VFC share of the 11-18 year old population. I detail these errors below, and show that the but-for MCV4 immunization rate that my model predicts is 78.4%. This is less than the 81% Tdap immunization rate to which Professor Rubinfeld compares the MCV4 rate. Furthermore, even if one assumed for the sake of argument that my model predicts a 95% immunization rate, this result would contradict Professor Rubinfeld’s own conclusion that the immunization rate is impossible; 95% is by definition smaller than the relevant population and thus is possible.

855. *Not All MCV4 Vaccines Are Administered to 11-18 year old children.* Professor Rubinfeld notes that I estimate but-for non-VFC MCV4 sales volume to be 19.2 million doses from 2010 to 2012.<sup>1576</sup> This represents total but-for non-VFC MCV4 sales for the entire US, which means it includes MCV4 doses administered to adults. But when Professor Rubinfeld compares this number to the “Non-VFC MCV4 Market Potential” from 2010 to 2012, he calculates only the number of vaccine doses that 11-18 year olds are recommended to receive, based on primary doses recommended for 11 year olds, booster doses for 16-18 year olds, and catch-up doses for 12-18 year olds.<sup>1577</sup> Professor Rubinfeld’s but-for MCV4 immunization rate calculation thus compares but-for vaccines sold for everyone in the U.S. to the dose potential for only those aged 11-18, which incorrectly assumes

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<sup>1573</sup> See “MRebut55556 Menactra Damages Assumption 1 no expansion.csv”; “MRebut55556 Menveo Damages Assumption 1 no expansion.csv”.

<sup>1574</sup> Rubinfeld Report ¶646.

<sup>1575</sup> Rubinfeld Report ¶652 (asserting that Elhauge model predicts 95% MCV4 vaccination rate).

<sup>1576</sup> Rubinfeld Report ¶651.

<sup>1577</sup> Rubinfeld Report ¶651; see also Rubinfeld Backup Exhibit\_40.xlsx (sheet “Indiv Tables - 2010 - 2012”).

that all MCV4 vaccines are used to immunize 11-18 year olds. But I explained in my opening merits report, and Professor Rubinfeld does not dispute, that “Statistics show that about 93% of meningococcal vaccine doses are administered to patients aged 11-18.”<sup>1578</sup> This means 7% of but-for MCV4 sales are intended to immunize people of other ages. To correctly calculate the predicted but-for non-VFC MCV4 immunization rate, one must use the same population bases for doses sold and dose potential. Thus, because the MCV4 dose potential estimated by Professor Rubinfeld is based solely on 11-18 year olds, one must reduce but-for MCV4 sales by 7% to remove MCV4 vaccine sales outside of that age range. This 7% reduction means that the correct but-for non-VFC MCV4 sales volume for calculating the immunization rate at 11-18 year olds is 17.9 million, not 19.2 million.

856. *Professor Rubinfeld Understates the Population of 11-18 year olds.* Professor Rubinfeld estimates the “Non-VFC MCV4 Market Potential” from 2010 to 2012 based in part on the population of 11-18 year olds in the United States during those years. However, he bases this estimation on single-age population figures given by the U.S. Census Bureau *for 2009*, and assumes that the population stays exactly the same as it ages.<sup>1579</sup> For example, his estimate of U.S. 11 year olds in 2010 (3.946 million) is actually the number of U.S. 10 year olds in 2009.<sup>1580</sup> Professor Rubinfeld overlooks the fact that the Census Bureau directly provides single-age population figures for 2010-2013, which has *exactly* the information needed (e.g. the number of U.S. 11 year olds in each of 2010, 2011, and 2012), obviating the need use figures from 2009.<sup>1581</sup> The updated Census Bureau dataset correctly shows that the U.S. teen population *grew* over the years, which means that Professor Rubinfeld understated the vaccine dose potential among 11-18 year olds. For example, the number of U.S. 11 year olds in 2010 was actually 4.115

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<sup>1578</sup> Elhauge Merits Report ¶37.

<sup>1579</sup> Rubinfeld Backup Exhibit\_40.xlsx (sheet “Ex40 Compare Market Potential”).

<sup>1580</sup> See Rubinfeld Backup Exhibit\_40.xlsx (sheet “Indiv Tables - 2010 - 2012”). Similarly, Professor Rubinfeld’s estimate for the population “Aged 16 and 17 in 2010” is based on the U.S. Census Bureau population figures for those aged 15 and 16 in 2009. See *id.*

<sup>1581</sup> United States Census Bureau, “State Characteristics Datasets: Annual Estimates of the Civilian Population by Single Year of Age and Sex for the United States and States: April 1, 2010 to July 1, 2013”, available at <http://www.census.gov/popest/data/state/asrh/2013/SC-EST2013-AGESEX-CIV.html> (accessed April 18, 2016).

million, not 3.946 million.<sup>1582</sup> After replacing Professor Rubinfeld's population estimates for each age with more accurate data, his formula for "Non-VFC MCV4 Market Potential" among 11-18 year olds calculates 20.9 million doses.<sup>1583</sup>

857. *Professor Rubinfeld Understates the Non-VFC Share of the Population.* As part of his calculation of the non-VFC MCV4 market potential among 11-18 year olds, Professor Rubinfeld removes the population share eligible for the VFC program. But his annual estimates for the VFC-ineligible population share are understated. His 2010, 2011, and 2012 estimates are "Based on Sanofi's estimate of 7-18 year olds eligible for VFC", which are 42.8%, 44.1%, and 46.2%, respectively.<sup>1584</sup> Professor Rubinfeld overlooked estimates of the VFC-eligible population available directly from the CDC for 2010 and 2011: the CDC calculates the "VFC-eligible" percentage of "Adolescents 13-17 Years of Age" for 2010 and 2011 to be 34.6%<sup>1585</sup> and 39.3%<sup>1586</sup>, respectively. These estimates are more reliable because they are provided directly by the CDC and do not include people outside of the age range being analyzed (11-18 year olds). The use of these CDC estimates is also more consistent with the rest of Professor Rubinfeld's MCV4 market potential estimation, because he measures the "potential catch-up population" (another factor in the estimation) using the same CDC National Immunization Survey data source for 13-17 year olds.<sup>1587</sup> But because Professor Rubinfeld erroneously uses Sanofi's higher values for the VFC-eligible population, he estimates a smaller non-VFC MCV4 market potential. I correct his estimation

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<sup>1582</sup> *Id.* The 2009 population numbers used by Professor Rubinfeld and the correct source for 2010-2013 population numbers both provide the population as of July 1 each year, and so the disparity is not due to a time period shift.

<sup>1583</sup> See "Exhibit\_40\_Corrected.xlsx" (sheet "Indiv Tables - 2010 - 2012").

<sup>1584</sup> See Rubinfeld Backup Exhibit\_40.xlsx (sheet "Indiv Tables - 2010 - 2012").

<sup>1585</sup> National Immunization Survey-Teen, United States, 2010, "Estimated Percentage, of Adolescents 13-17 Years of Age With Selected Socio-demographic Characteristics by State and Selected Area", available at [http://www2a.cdc.gov/nip/coverage/nisteen/nis\\_iap.asp?fmt=d&rpt=tab17\\_dem&qtr=Q1/2010-Q4/2010](http://www2a.cdc.gov/nip/coverage/nisteen/nis_iap.asp?fmt=d&rpt=tab17_dem&qtr=Q1/2010-Q4/2010) (accessed April 18, 2016).

<sup>1586</sup> National Immunization Survey-Teen, United States, 2011, "Estimated Percentage, of Adolescents 13-17 Years of Age With Selected Socio-demographic Characteristics by State and Selected Area", available at [http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/tables/11/tab19\\_demo\\_Overall\\_2011.pdf](http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/tables/11/tab19_demo_Overall_2011.pdf) (accessed April 18, 2016).

<sup>1587</sup> Rubinfeld Report ¶651 n.825 ("In order to determine the size of the potential catch-up population, I assume that 37.3% of all patients aged 12-18 years old in 2010 would be eligible to receive the catch-up dose, based on the "CDC's estimate that 62.7% of patients aged 13-17 years old had already received a dose of MCV4 by 2010.").

by using the CDC data for 2010 and 2011. The CDC did not estimate the proportion of VFC-eligible 13-17 year olds in 2012,<sup>1588</sup> and so I continue to use the Sanofi estimate for 2012, which makes my corrections conservative.

858. *The Combined Effect of Correcting Professor Rubinfeld's Three Errors.* After making all three corrections just discussed, the “Non-VFC MCV4 Market Potential” for 11-18 year olds calculated by Professor Rubinfeld’s formula is 22.9 million doses, and the “But-for Non-VFC MCV4 Private Market Size” is 17.9 million doses, resulting in a but-for MCV4 immunization rate of 78.4%.<sup>1589</sup> A 78.4% but-for MCV4 immunization rate is not unrealistic, especially because it is lower than the 81% actual Tdap immunization rate calculated and used as a basis for comparison by Professor Rubinfeld.<sup>1590</sup>

859. The erroneous nature of Professor Rubinfeld’s 95% MCV4 immunization rate result can also be illustrated by the common sense observation that his *uncorrected original* calculations predict that my but-for Non-VFC MCV4 Market Size would be 1.286 times bigger than the actual Non-VFC MCV4 Market Size (increasing from 15.0 million to 19.3 million),<sup>1591</sup> yet he claims that this increase would make the but for MCV4 immunization rate 1.51 times bigger (rising from 63% to 95%).<sup>1592</sup> This internal inconsistency shows a clear flaw in his claimed but-for immunization rate. By contrast, if one measures the immunization rate increase in the same proportion as the market size increase – growing 1.286 times larger – then the predicted but-for MCV4 immunization rate would be  $1.286 \times 63\% = 81\%$ , which is only slightly higher than the 78.4% MCV4 immunization rate based on the corrected Professor Rubinfeld calculation, and still commensurate with the 81% Tdap immunization rate.

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<sup>1588</sup> See National Immunization Survey-Teen, United States, 2012, “Estimated Percentage, of Adolescents 13-17 Years of Age With Selected Socio-demographic Characteristics by State and Selected Area”, available at [http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/tables/12/tab19\\_demo\\_Overall\\_2012.pdf](http://www.cdc.gov/vaccines/imz-managers/coverage/nis/teen/tables/12/tab19_demo_Overall_2012.pdf) (accessed April 18, 2016).

<sup>1589</sup> “Exhibit\_40\_Corrected.xlsx” (sheet “Indiv Tables - 2010 - 2012”).

<sup>1590</sup> Rubinfeld Report ¶652 n.827.

<sup>1591</sup> See Rubinfeld Backup Exhibit\_40.xlsx (sheet “Indiv Tables - 2010 - 2012”) (“Actual Non-VFC MCV4 Market” is 15.0 million and “Prof. Elhauge's But-for Non-VFC MCV4 Market Size” is 19.3 million, which is a 28.4% difference).

<sup>1592</sup> Rubinfeld Report ¶652 (“the actual immunization rate for MCV4 was 63% for primary doses”).

860. Even if one (erroneously) assumed that my model predicts a but-for immunization rate of 95%, this would not be an unrealistic result. On the contrary, a 95% vaccination rate would be highly desirable from a public health perspective, not impossible. Nor does a 95% MCV4 vaccination rate appear unrealistic given that Rubinfeld Exhibit 40 indicates that the Tdap vaccination rate is already 81% in the actual world. Indeed, the Tdap vaccination may very well also be anticompetitively deflated (by anticompetitively inflated prices) because Sanofi's contracts also require PBG and 4P system customers to pay penalties on Sanofi pediatric vaccines if they are not loyal to Sanofi's Tdap vaccine, Adacel.

861. In any event, Professor Rubinfeld's argument that my model predicts an implausibly large increase in MCV4 output is moot because I just showed that my differentiated Bertrand model predicts a substantial overcharge even if one conservatively assumes that the MCV4 market would not expand at all in the but-for world.

#### ***G. Novartis But-for Prices vs. Forwardlooking Costs***

862. I showed in my opening merits report that the but-for Menveo prices predicted by my differentiated Bertrand model exceed Novartis's forwardlooking costs. Professor Rubinfeld fails to show otherwise. Indeed, even if one accepts various inappropriate assumptions that he makes, he ultimately concludes only that it is "quite ***possible*** that Novartis would not have been able to cover its forward-looking costs for Menveo."<sup>1593</sup>

863. **Menveo But-for Prices Exceed Forwardlooking Costs Even After Accounting for Lower VFC Prices.** In my opening merits report I showed that Menveo's but-for private sector price exceeded its forwardlooking cost per dose.<sup>1594</sup> Professor Rubinfeld criticizes this analysis for not including lower prices on VFC sales.<sup>1595</sup> But this critique is not supported by the numbers because including VFC sales does not affect the conclusion. As Table 12 below shows, Menveo's average VFC-plus-private but-for price exceeds its forwardlooking cost per dose in every year.

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<sup>1593</sup> Rubinfeld Report ¶653 (emphasis added).

<sup>1594</sup> Elhauge Merits Report Table 31.

<sup>1595</sup> Rubinfeld Report ¶654.



<b>Table 12: Menveo But-for VFC-plus-Private Prices vs. Recurring Forwardlooking Cost Per Dose</b>			
	<b>2010</b>	<b>2011</b>	<b>2012</b>
Total Forwardlooking Cost /Dose [a] + ([d] / [e])	\$31.17	\$22.50	\$23.51
But-for Menveo Price (weighted VFC-plus-Private) <sup>1596</sup>	\$42.98	\$36.17	\$36.97

864. **Menveo’s Non-Marginal Marketing & Sales Costs are Not Recurring Fixed Costs.** Professor Rubinfeld asserts incorrectly that I offered no justification why “it is not reasonable” to treat Novartis’s marketing, advertising, and salesforce costs identically to Sanofi.<sup>1597</sup> But I did in fact offer a justification. The data showed that Novartis’s marketing, advertising, and salesforce costs did *not* vary with output,<sup>1598</sup> whereas Sanofi’s promotion and internal sales force costs did increase with output.<sup>1599</sup> I further explained that Novartis was a recent entrant in the MCV4 (unlike Sanofi) and thus was incurring the fixed cost of entry to establish name recognition.<sup>1600</sup> Rather than offering any response to the justifications that I actually offered, Professor Rubinfeld simply asserts that I offered no justification.

#### ***H. Kaiser’s Price Does Not Contradict My Analysis***

865. Professor Rubinfeld asserts that my differentiated Bertrand model’s estimates of but-for Menactra and Menveo prices must be wrong because they are

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<sup>1596</sup> But-for Private prices come from Elhauge Merits Table 31. But-for Menveo VFC prices are 93% of but-for Menveo private prices. Elhauge Merits Report ¶341. Relative Menveo but-for VFC and private quantities come from “Merits11000 Actual vs Butfor Quantities Assumption 1.csv”.

<sup>1597</sup> Rubinfeld Report ¶656.

<sup>1598</sup> Elhauge Merits Report ¶308, Figure 34.

<sup>1599</sup> Elhauge Merits Report Figure 30.

<sup>1600</sup> Elhauge Merits Report ¶309.



below the actual price that Kaiser paid.<sup>1601</sup> Professor Rubinfeld is wrong for several reasons.

866. **a. Kaiser's Contract With Sanofi May Be Bundled.** Professor Rubinfeld's entire argument is based on the false statement that I acknowledge there is no bundle affecting Kaiser.<sup>1602</sup> I actually explicitly stated that it was unclear whether Sanofi's contract with Kaiser was bundled.<sup>1603</sup> Professor Rubinfeld asserts it is "clear that Kaiser was not restrained,"<sup>1604</sup> but he is wrong.

867. The contract Kaiser signed with Sanofi effective July 1, 2009 to September 30, 2012 requires Kaiser to meet a "Minimum Annual Dose Commitment" for Menactra that was designed to be equivalent to a 100% market share requirement.<sup>1605</sup> Professor Rubinfeld does not dispute this. Section 3.6 of this Kaiser-Sanofi agreement explicitly states that if Kaiser "fails to meet its annual dose commitment on one or more of the Committed Products during any year of the term of this Agreement, Seller [Sanofi] at its option, may terminate the Agreement, in whole or with respect to such Committed Product(s)."<sup>1606</sup> This clause means that, if Kaiser broke its commitment on Menactra due to purchasing too much Menveo, Sanofi could terminate the entire agreement and raise the prices of all of its Pediatric vaccines to Kaiser.

868. Professor Rubinfeld argues that this Sanofi-Kaiser contract is not bundled because section 3.5 states "If this Agreement is for a single source Product, and at any time the Product becomes a multi-source product, the Program [Kaiser], at its option, may reopen the negotiation of the price of the Product or terminate the Agreement with respect to said Product."<sup>1607</sup> Professor Rubinfeld claims that this clause "suggests that once Novartis brought Menveo to the market, Kaiser could open the bidding for the supply of its MCV4 vaccine on a single-product basis without jeopardizing its price on the Sanofi pediatric products

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<sup>1601</sup> Rubinfeld Report ¶¶658-660.

<sup>1602</sup> Rubinfeld Report ¶658 ("Professor Elhauge has not claimed that Kaiser's contract contained the challenged conduct or that Kaiser was somehow affected by the market division.").

<sup>1603</sup> Elhauge Merits Report ¶221 ("Unclear Whether Kaiser's Contracts Were Subject to the Bundle.").

<sup>1604</sup> Rubinfeld Report ¶658.

<sup>1605</sup> Elhauge Merits Report ¶222, citing SP 00086608 at SP 00086611.

<sup>1606</sup> Elhauge Merits Report ¶222, citing SP 00086608 at SP 00086609.

<sup>1607</sup> Rubinfeld Report ¶492, citing SP 00086608-12 at 09.

included in the contract.”<sup>1608</sup> But section 3.5, which merely allows Kaiser to *renegotiate Menactra’s price* if Menveo entered, does not negate section 3.6, which allows Sanofi to terminate the entire agreement and increase its Pediatric prices to Kaiser if Kaiser buys Menveo.<sup>1609</sup> Thus, even if Kaiser could start buying Menveo instead of Menactra, Kaiser could not avoid the potential bundled penalty for doing so. Given this potential bundled penalty, Sanofi would not need to agree to a lower renegotiated Menactra price upon Menveo entry to keep Kaiser’s business, just like Sanofi opted not to grant individualized discounts to restrained customers in response to Menveo entry.<sup>1610</sup> Indeed, Novartis at one point offered Kaiser a price of [REDACTED] dose in December 2010,<sup>1611</sup> which was \$7/dose cheaper than the \$79/dose price Sanofi was charging Kaiser for Menactra,<sup>1612</sup> but Kaiser still purchased only Menactra, and Sanofi continued to charge \$79/dose for Menactra.<sup>1613</sup>

869. Professor Rubinfeld also ignores the fact that Kaiser entered into a new bundled contract with Sanofi in 2012, which allowed Sanofi to terminate the entire agreement (and thus raise prices for its Pediatric vaccines) if Kaiser did not purchase an amount of Menactra roughly equal to 80% of its total MCV4 demand.<sup>1614</sup>

870. **b. Sanofi’s Bundle Reduced the Firms’ Incentives to Cut Prices to Kaiser By Artificially Inflating their VFC Prices.** Menactra’s VFC price can be no higher than its lowest private-sector price, and likewise Menveo’s VFC price can be no higher than its lowest private-sector price.<sup>1615</sup> At the time Menveo entered, Menactra’s price to Kaiser was already exactly at Menactra’s VFC Price (\$79), and Novartis offered Kaiser a Menveo price of 1% above Menveo’s [REDACTED]

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<sup>1608</sup> Rubinfeld Report ¶492.

<sup>1609</sup> Although Section 3.5 gave Kaiser the option to “terminate the Agreement with respect to” Menactra when Menveo entered, that would trigger Section 3.6 of the agreement, which allows Sanofi to terminate the entire agreement if Kaiser “fails to meet its annual dose commitment on one or more of the Committed Products” because Menactra is a “Committed Product.” SP 00086608 at SP 00086609.

<sup>1610</sup> See *supra* Part VIIIA.4, citing, for example, SP 00827165 at SP 00827168 (stating that Sanofi should considering resorting to matching a Novartis price cut only if the Bundle did not deter the customer from switching to Menveo).

<sup>1611</sup> [REDACTED]

<sup>1612</sup> “295 Kaiser Prices vs GPO Access prices.xls”.

<sup>1613</sup> “295 Kaiser Prices vs GPO Access prices.xls”.

<sup>1614</sup> Elhauge Merits Report ¶223.

<sup>1615</sup> Elhauge Merits Report ¶185.

VFC price.<sup>1616</sup> Consequently, Sanofi could not further cut Kaiser's price at all without cutting its VFC price, and Novartis could not cut its offer to Kaiser by more than 1% without reducing its VFC price. Cutting the VFC price significantly just to gain Kaiser's business would not make much sense because Kaiser constitutes less than 4% of the MCV4 market,<sup>1617</sup> while the VFC segment constitutes 40% of the MCV4 market.<sup>1618</sup> In contrast, in the but-for world Sanofi and Novartis's VFC prices would be significantly lower (because their non-Kaiser private sector prices would be well below their actual VFC prices),<sup>1619</sup> and Sanofi and Novartis would therefore be able compete for Kaiser with significant price cuts without having to also sacrifice profits in the VFC segment. The Bundle thus anticompetitively reduced Sanofi and Novartis's incentives to compete on price for Kaiser (irrespective of whether Kaiser's contract with Sanofi contained bundled terms).

### ***I. Predicted But-for Prices and Profit Margins Are Well Within Normal Range for Vaccines***

871. In response to Sanofi arguments that my predicted but-for prices were "implausible," I pointed out in my opening merits report that: (a) these but-for prices were well within the normal range for vaccines, and in fact Menactra's but-for price was "over double the *maximum* penalty price per dose that Sanofi charged in 2010 for its Daptacel, Tripedia, ActHIB, and IPOL vaccines, and is substantially higher than the \$52.25/dose price Sanofi charged buying group members for Pentacel,"<sup>1620</sup> and (b) Menactra and Menveo's but-for profit margins were within the normal range for the vaccine industry.<sup>1621</sup> Neither of these comparisons by themselves proves that the Bundle anticompetitively raised MCV4 prices. But

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<sup>1616</sup> Sanofi and Novartis's VFC prices were both \$79.00 upon Menveo entry. "Merits2296 VFC prices.csv". When Menveo entered, Sanofi was already charging Kaiser \$79.00 for Menactra. "295 Kaiser prices vs GPO Access prices." [REDACTED]

<sup>1617</sup> Elhauge Merits Report ¶221 (Kaiser constituted less than 3.7% of all Menactra doses since March 1, 2010).

<sup>1618</sup> Elhauge Merits Report ¶185.

<sup>1619</sup> Menveo and Menactra's VFC prices have always been \$79 or higher since Menveo entry, "Merits2296 VFC prices.csv," whereas Menactra and Menveo's average non-Kaiser private sector but-for prices would have always been below [REDACTED]. Elhauge Merits Report Tables 29-30.

<sup>1620</sup> Elhauge Merits Report ¶353.

<sup>1621</sup> Elhauge Merits Report ¶354.

they do show that Sanofi was wrong when it claimed that these but-for prices were “absurd” or “irrational.”<sup>1622</sup>

872. **a. Professor Rubinfeld’s Correct Observation that Other Vaccines Have Different Prices Primarily Due to Different Market Conditions Shows Why His “Yardstick” Damages Analysis Is Unreliable.** Professor Rubinfeld argues that comparing Menactra prices to prices for Sanofi pediatric vaccines is “meaningless” because “there is no reason to expect that Menactra should be priced at the same level as Sanofi’s *pediatric* vaccines. They are different vaccines that inoculate against different diseases, are administered to a different (and younger) population, have different manufacturing process, with different costs of production, and face different market conditions.”<sup>1623</sup> I agree that simply comparing prices of different vaccine markets is “meaningless” if one were doing so to estimate damages. That is precisely one of the reasons why Professor Rubinfeld’s “yardstick” analysis using other vaccine markets is “meaningless.” So Professor Rubinfeld’s argument here (where he is trying to reject any comparison between vaccine markets as meaningless) contradicts his argument elsewhere in his report (where he claims that other vaccine markets are so similar that they provide a valid benchmark for calculating damages).<sup>1624</sup> But I never compared but-for Menactra and Menveo prices to Sanofi’s actual vaccine prices to calculate damages. Rather, I did so only to rebut Sanofi’s false claim that my but-for prices were “absurd” or “irrational.”<sup>1625</sup>

873. **b. But-for Profit Margins Are Within Normal Range for Vaccine Industry.** In response to Sanofi claims that my predicted but-for Menactra and Menveo prices were implausible, I also pointed out that the resulting predicted but-for profit margins were actually well within the normal range in the vaccine industry.<sup>1626</sup> Professor Rubinfeld ultimately does not assert that my predicted but-for profit margins are implausibly low in the vaccine industry. Nonetheless, Professor Rubinfeld does make three inconsequential criticisms of this analysis.

874. First, Professor Rubinfeld argues that my source for standard profit margins in the vaccine industry—a textbook published in 2008, written in part by

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<sup>1622</sup> Sanofi Daubert Motion to Exclude Plaintiffs’ Class Experts at 18, 24

<sup>1623</sup> Rubinfeld Report ¶661.

<sup>1624</sup> See *infra* Part X.

<sup>1625</sup> Sanofi Daubert Motion to Exclude Plaintiffs’ Class Experts at 18, 24

<sup>1626</sup> Elhauge Merits Report ¶354.

an advisor to Sanofi Pasteur<sup>1627</sup>—is no longer accurate because it relies on a study of vaccine profit margins from 1995.<sup>1628</sup> But Professor Rubinfeld provides no evidence that vaccine profit margins have changed significantly since then. Nor does Professor Rubinfeld provide any explanation why, if these figures were out of date, a Sanofi advisor would use them in a textbook published only two years before Menveo entered.

875. Second, Professor Rubinfeld points out correctly that profit margins differ between vaccine markets in part due to differences in supply and demand in other vaccine markets.<sup>1629</sup> This does not invalidate my basic point that my predicted but-for profit margins are not so low as to be, as Sanofi claimed, “absurd” or “irrational.” But it *does* invalidate Professor Rubinfeld’s use of other vaccine markets as yardsticks for damages *without* controlling for the economic factors that differ between his yardstick markets and the MCV4 market. His analysis here thus again contradicts his argument elsewhere in his report, where he claim that other vaccine markets provide a valid benchmark for calculating damages even though supply and demand differs in those market and he does not control for those differences.<sup>1630</sup>

876. Third, Professor Rubinfeld asserts that the 44% average vaccine industry profit margin I relied upon was calculated “across the private and public segments” but that I compared it to Sanofi and Novartis’s private-only but-for profit margins.<sup>1631</sup> Even if one accepts Professor Rubinfeld’s assertion that the 44% average vaccine industry profit margin is a combined figure for the private and public segments, my ultimate conclusion does not change. For 2010, Menactra’s weighted average private-plus-public but-for price is \$50.83,<sup>1632</sup> while Menveo’s is [REDACTED].<sup>1633</sup> Their marginal costs in 2010 were \$15.08 and [REDACTED].<sup>1634</sup>

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<sup>1627</sup> PLOTKIN, ORENSTEIN & OFFIT, VACCINES 41, Figure 3-1 (5<sup>th</sup> ed. 2008). Stanley A. Plotkin is an advisor to Sanofi Pasteur.

<sup>1628</sup> Rubinfeld Report ¶663.

<sup>1629</sup> Rubinfeld Report ¶663.

<sup>1630</sup> See *infra* Part X.

<sup>1631</sup> Rubinfeld Report ¶664.

<sup>1632</sup> For 2010, Menactra’s private but-for price is \$59.13. Elhauge Merits Report ¶354. The but-for VFC price is 93% of Menveo’s but-for private price, which equals \$44.05 \* 93% = \$40.96. Relative private versus VFC quantities come from “Merits11000 Actual vs Butfor quantities assumption 1.csv”.

<sup>1633</sup> See *supra* Table 12.

<sup>1634</sup> Elhauge Merits Report ¶354.

Therefore Menactra's combined private-plus-public but-for profit margin is 70% and Menveo's combined private-plus-public but-for profit margin is 36%. Thus, Menactra's but-for profit margin is still well above the average vaccine industry profit margin and Menveo's but-for profit margin is only slightly below the average. This refutes Sanofi's claim that my predicted but-for profit margins are implausibly low for the vaccine industry.

## IX. PROFESSOR RUBINFELD'S CONJECTURAL VARIATION MODEL IS FLAWED

877. In Part XI.D of his report, Professor Rubinfeld purports to calibrate his own but-for model (his conjectural variation model) to actual prices in the private sector of the market.<sup>1635</sup> His approach here flatly contradicts his position elsewhere in his report, where he criticized my calibration on the ground that it is impossible to accurately calibrate a but-for model to actual prices because the absence of the Bundle in the but-for world makes it too "fundamentally different" from the actual world where bundling existed.<sup>1636</sup> His point there was not actually applicable to my calibration because I calibrated my model to the FSS part of the market that (like the but-for world) was *not* subject to the Bundle.<sup>1637</sup> But his point there fully applies to (and contradicts) his own but-for model, which he purports to calibrate to actual prices in the private sector of the market that (unlike the but-for world) *was* subject to the Bundle, and thus was "fundamentally different" in precisely the way he said would make accurate calibration impossible. Worse, he purports to calibrate his but-for model to actual prices even though his model does not even take into account the terms of the Bundle!

878. Professor Rubinfeld's "conjectural variation" model<sup>1638</sup> is his last attempt at supporting the only explanation he offers for why class member Menactra prices remained at monopoly levels after Menveo entry: that the Bundle did not restrain customers from buying Menveo, but that Sanofi and Novartis

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<sup>1635</sup> Rubinfeld Report ¶¶711-13.

<sup>1636</sup> Rubinfeld Report ¶625. His critique of my calibration is misguided for the simple reason that I calibrated my model to the FSS part of the market that was *not* subject to the Bundle so not fundamentally different.

<sup>1637</sup> See *supra* Part VIII.C.2.

<sup>1638</sup> As I explain in more detail below in Section A.1., a "conjectural variation model" is a mathematical model of how firms set prices that assumes that each firm sets its own prices based in part on a "conjecture" about how its rivals will change their prices in response.



coordinated on class member prices at “approximate parity.”<sup>1639</sup> As I have explained above in Part V, Professor Rubinfeld’s claim that the Bundle did not restrain customers from buying Menveo contradicts all the evidence in this case, including not only many different types of statistical analyses, but also the contemporaneous internal business records of Sanofi and Novartis, which explicitly acknowledged that the Bundle restrained customers from buying Menveo. And as I explained above in Part VIII.A, transaction data irrefutably disproves his claim that Sanofi and Novartis coordinated on class member prices at “approximate parity” or in any other way and market conditions made any such coordination economically implausible. Given this evidence, one should be skeptical of any model, such as Professor Rubinfeld’s conjectural variation model, purporting to indicate that the Bundle did *not* actually have a restraining effect and that Sanofi and Novartis *did* actually coordinate on class member prices.

879. Sure enough, Professor Rubinfeld’s backup programs show that his “conjectural variation” model relies on five unjustifiable assumptions that he did not even mention in his report.<sup>1640</sup> This combination of five unjustifiable assumptions is necessary to create a model that would support his opinions that the Bundle did not restrain customer decisions and that Sanofi and Novartis coordinated on price. That makes the results of his conjectural variation model meaningless.

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<sup>1639</sup> Rubinfeld Report Part VII.B (disputing my analysis showing that the Bundle restrained customer decisions); Rubinfeld Report ¶605 (“Menactra and Menveo were priced at approximate parity”). Although Professor Rubinfeld lists several academic articles stating that, in some situations, second-entry can cause incumbent prices to increase, he does not argue that any of those situations apply to this case. Rubinfeld Report ¶542.

<sup>1640</sup> Professor Rubinfeld’s Report did not even discuss, let alone try to justify, any of the following unjustifiable methodological choices: (1) assuming that varying amount of bundled penalties do not affect customer decisions by ignoring variations in customer purchases of Sanofi pediatrics; (2) assuming the firms’ conjectures in the actual world are the same as their conjectures in the but-for world even though the firms demand functions would be completely different in the but-for world, even according to his own assumptions; (3) assuming 4P system customers do not exist; (4) assuming the CDC VFC program does not exist when estimating the conjectures, then applying those conjectures to a model that incorporates the CDC VFC program; (5) choosing a regression sample period that includes periods when customers “stock up” on their preferred vaccine at temporarily discounted prices, which causes an econometric bias that makes his regression overestimate the actual level of substitution between Menveo and Menactra. *See infra* Section A.2 (Professor Rubinfeld assumed that 4P system customers and the VFC do not exist); Section A.4 (errors in Professor Rubinfeld’s “hidden regression”); Section B.1 (Professor Rubinfeld’s erroneous assumption that the but-for world conjectures would be the same as the actual world conjectures).

880. Boiled down, in Professor Rubinfeld's conjectural variation model there are two possible alternative explanations for why Menactra's class member prices remained at 100% monopoly levels following Menveo entry: (A) my explanation, that the firms did *not* coordinate on class member prices, and that the Bundle gutted Novartis's and Sanofi's incentives to cut prices by restraining customers' ability to switch between Menveo and Menactra; versus (B) Professor Rubinfeld's explanation, that the firms *did* coordinate at "approximate parity" on class member prices, and that customers were *not* at all restrained by the Bundle.

881. Firms will cut price if they believe doing so will steal sufficient customers from rivals (i.e., increase quantity enough) to make the price cut profitable. So if one observes a firm not cutting price in response to second entry (like when Sanofi did not cut Menactra's price in response to Menveo entry), it means the firms believe they will not win many customers if they cut price. My explanation is that Menveo believes it will not win many customers by cutting price because it knows that Sanofi's Bundle restrains customers from buying Menveo even when Menveo offers line-item savings on just MCV4 purchases. This explanation is supported by all of the evidence in this case, from simple Novartis and Sanofi internal statements and the size of the bundled penalties to multiple types of data analysis. In contrast, Professor Rubinfeld's explanation is that the Bundle does *not* restrain customer decisions (i.e., that they would freely switch to Menveo if Menveo offered line-item savings, despite the bundled penalties), but that Novartis believes that it will not gain any customers by cutting price because Sanofi will match that price cut (near) identically. For example, under Professor Rubinfeld's explanation, Novartis believes that, if it could provide line-item savings on Menveo it could win a significant portion of restrained customers, despite the bundled penalties. But under Professor Rubinfeld's explanation, Novartis believes that if it cuts Menveo's price by \$10, Sanofi would respond by cutting Menactra's price by \$9.80,<sup>1641</sup> eliminating the bulk of any line-item savings on MCV4 purchases that customers would gain by switching to Menveo, and thus meaning Menveo would hardly gain any customers with a \$10 price cut. As discussed throughout this report, every aspect of Professor Rubinfeld's explanation is contradicted by the evidence in this case. Professor Rubinfeld's explanation hinges on the Bundle not restraining customers from switching to Menveo, but Sanofi and Novartis internal documents, the large size of the bundled penalties, the high compliance rates with the Bundle, Menveo's

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<sup>1641</sup> Rubinfeld Report ¶713 (asserting that Novartis's conjecture is 98%).

significantly higher share among unrestrained customers, and the Menveo share regression all indicate that the Bundle *did* restrain customer decisions. Professor Rubinfeld's explanation also hinges on Sanofi and Novartis coordinating on class member prices at "approximate parity" (i.e., Sanofi matching any Novartis price cut, as in the example above), but the characteristics of the MCV4 market make coordinating on class member prices implausible, Menactra's price structure does not match Menveo's price structure, and Sanofi and Novartis transaction data directly shows that they did not coordinate on "approximate parity" prices for class members.

882. Professor Rubinfeld claims his "conjectural variation" model supports his explanation, but it actually hinges entirely upon what I will call his "hidden regression." I call this Professor Rubinfeld's "hidden regression" because Professor Rubinfeld mentioned it neither in his report nor in the backup programs submitted with his report.<sup>1642</sup> His "hidden regression" functionally attempts to measure whether class members were restrained from switching to Menveo. If his hidden regression indicates that class members were *not* restrained (i.e., that they freely switch between Menveo and Menactra in response to line-item price differences), then in his model the only remaining explanation for why Menactra's price remained at 100% monopoly levels is Professor Rubinfeld's: perfect price coordination. In contrast, if his hidden regression indicates that class members *were* restrained from switching between Menveo and Menactra in response to price differences, then in his model that would be consistent with my explanation that the Bundle gutted Novartis's incentives to cut price. Professor Rubinfeld's "hidden regression" purportedly indicates that private customers do switch freely between Menveo and Menactra in response to price differences despite the restraint imposed by the Bundle. Given that hidden regression finding, Professor Rubinfeld's conjectural variation model reaches the only conclusion that in his model is consistent with both Menactra's private price remaining at 100% monopoly levels and private customers being unrestrained: that Sanofi and Novartis must have coordinated on private customer prices. Thus, the conclusion of Professor Rubinfeld's conjectural variation model hinges entirely on his "hidden regression" indicating (spuriously) that private customers could freely switch between Menveo and Menactra in the actual world, despite Sanofi's Bundle.

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<sup>1642</sup> Professor Rubinfeld did not produce the backup for his "hidden regression" until I asked plaintiffs' counsel to ask Sanofi's counsel for the basis for the crucial assumptions about customer substitution that Professor Rubinfeld made in his conjectural variation model.

883. The hidden regression alone relies on at least three unjustifiable assumptions, which include: (1) assuming that varying amount of bundled penalties do not affect customer decisions by ignoring variations in customer purchases of Sanofi pediatrics; (2) assuming 4P system customers do not exist; and (3) selecting a regression sample period that includes times when private customers “stock up” on their preferred MCV4 vaccine when it is temporarily discounted, which econometrically biases his results.<sup>1643</sup> Professor Rubinfeld did not even attempt to justify any of these assumptions because he did not even mention his “hidden regression” in his report.

884. Professor Rubinfeld then exacerbated the errors in his “hidden regression” by making two additional unjustifiable assumptions when trying to translate those regression results into estimates of the firms “conjectures” (i.e., estimates of the extent to which Sanofi and Novartis coordinated on price).<sup>1644</sup> (1) He assumes the firms’ conjectures in the actual world are the same as their conjectures in the but-for world, even though the firms’ quantity sold functions would be completely different in the but-for world, even according to his own assumptions.<sup>1645</sup> (2) He assumes that 4P systems and the VFC segment do not exist.<sup>1646</sup> He also makes an inconsistent assumption by applying those conjectures to a model that incorporates the CDC VFC program 4P systems, even though he assumed that CDC VFC program and 4P systems, did not exist when estimating the conjectures.<sup>1647</sup> Professor Rubinfeld does not even mention any of these assumptions in his report, let alone provide any theoretical justification for them.

885. All told, Professor Rubinfeld has failed to provide *any* theoretical justifications for *any* one of the five unjustifiable assumptions that are essential to his conclusions. His model instead uses the exact combination of assumptions that

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<sup>1643</sup> *Infra* Section A.4.

<sup>1644</sup> In Professor Rubinfeld’s conjectural variation model, Sanofi’s “conjecture” is its best guess of how much Novartis will reduce Menveo’s price if Sanofi reduces Menactra’s price, and Novartis’s “conjecture” is conversely its best guess of how much Sanofi will reduce Menactra’s price if Novartis reduces Menveo’s price. *See infra* Section A.1. for a more detailed discussion.

<sup>1645</sup> Rubinfeld Report n.885.

<sup>1646</sup> “2Segment\_Bertrand\_CV.nb” from Rubinfeld backup.

<sup>1647</sup> *Compare* “2Segment\_Bertrand\_CV.nb” (program from Rubinfeld backup attempting to infer conjectures in a model that assumes that 4P systems and the VFC do not exist) *with* “Merits10001 But for Prices Assumption 1 CV.nb” (program from Rubinfeld backup attempting to apply these inferred conjectures to a model that incorporates 4P systems and the VFC). Both files come from Professor Rubinfeld’s backup.

are necessary to produce the result that benefits Sanofi, regardless of whether those assumptions are theoretically appropriate. This is not a valid or reliable methodology.

886. Given the numerous unjustifiable assumptions that go into Professor Rubinfeld's conjectural variation model, it should be no surprise that nonsense comes out. Professor Rubinfeld's conjectural variation model indicates that, in response to Menveo entry in the but-for world, Sanofi would *increase* Menactra's average class member price to \$134.34, which is more than \$30 above the maximum price it charged pre-entry.<sup>1648</sup> No evidence supports this implausible prediction that the start of market competition would increase incumbent monopoly prices by more than 30%. Professor Rubinfeld's conjectural variation model also indicates that Novartis would enter at an even higher \$157.57 price, which makes especially little sense given that Menveo is less preferred on average than Menactra. In short, his model concludes not only that the first competitive entry into a monopoly market would raise the incumbent monopolist's prices by more than 30%, but also result in entrant prices that are more than 50% higher than pre-entry monopoly prices. His prediction clearly runs contrary to all standard antitrust economics.

887. Below, I describe the methodology behind Professor Rubinfeld's conjectural variation model and explain each of his errors along the way. Part A describes Professor Rubinfeld's erroneous attempt to use a conjectural variation model to infer Sanofi and Novartis's "conjectures," which are mathematical values that indicate the extent to which Sanofi and Novartis were coordinating on class member prices in the actual world. Part B describes the additional errors Professor Rubinfeld makes when he tries to translate these erroneous estimates of the firms' conjectures in the actual world into but-for price estimates.

***A. Professor Rubinfeld's Attempt to Use the Conjectural Variation Model to Infer Whether Sanofi and Novartis Coordinated on Class Member Prices***

888. Section 1 below describes the theory behind using a conjectural variation model to infer the extent to which firms coordinated on price. Sections 2-5 then describe the numerous errors Professor Rubinfeld made when trying to

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<sup>1648</sup> Rubinfeld Report ¶713 ("The model predicts Menactra and Menveo but-for prices [of] ... \$134.34 and \$157.57 for Menactra and Menveo, respectively.").



apply a conjectural variation model to the facts of this case, including the errors in his “hidden regression” as well as others.

*1. Theory Behind Inferring the Extent of Coordination Using a Conjectural Variation Model*

889. I use a differentiated Bertrand competition model because of the evidence that Sanofi and Novartis cannot coordinate on class member prices. Under that model, each firm chooses the price that maximizes its individual profits. The equilibrium set of prices is the set of prices where Menactra’s equilibrium price maximizes Sanofi’s profits, given Menveo’s equilibrium price, and conversely Menveo’s equilibrium price maximizes Novartis’s profits, given Menactra’s equilibrium price. This is the appropriate assumption for the MCV4 market given the evidence that Sanofi and Novartis were not able to coordinate on class member prices in the actual world and would not be able to do so in the but-for world either.<sup>1649</sup>

890. My analysis went above and beyond the normal methodology used to determine the firms’ conjectures in merger simulation. Professor Rubinfeld’s own academic writing acknowledges that the standard methodology is to assume conjectures of zero (i.e., no coordination) in markets with differentiated products.<sup>1650</sup> In contrast, here I did not simply assume that the firms did not

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<sup>1649</sup> See Elhaug Merits Report Part VII.A.3; *supra* Part VIII.A.

<sup>1650</sup> Roy J. Epstein & Daniel L. Rubinfeld, *Merger Simulation: A Simplified Approach with New Applications*, 69 Antitrust L.J. 883, 886 (2001) (“Simulation models typically assume that firms’ behavior is consistent with the Bertrand model of pricing, both pre- and post-merger.”);

Roy J. Epstein & Daniel L. Rubinfeld, *Merger Simulation with Brand-Level Margin Data: Extending PCAIDs with Nests*, 4 Advances in Economic Analysis & Policy at 3 (March 2004), available at [https://www.law.berkeley.edu/files/epstein\\_rubinfeld\\_nests\\_margins.pdf](https://www.law.berkeley.edu/files/epstein_rubinfeld_nests_margins.pdf) (“Merger simulation models for differentiated products typically assume that prices in the market can be analyzed using Bertrand assumptions.”);

Daniel Rubinfeld, *Empirical Methods in Antitrust: New Developments in Merger Simulation*, in *The More Economic Approach to European Competition Law* at 277 (2007) (“Simulation models typically assume that the behavior of firms is consistent with the Bertrand model of pricing, both pre- and post-merger.”);

Daniel Rubinfeld & Roy Epstein, *Effects of Mergers with Differentiated Products* EU Competition Directorate, October 7, 2004 at 1, available at [http://ec.europa.eu/competition/mergers/studies\\_reports/effects\\_mergers\\_involving\\_differentiated\\_products.pdf](http://ec.europa.eu/competition/mergers/studies_reports/effects_mergers_involving_differentiated_products.pdf) (“merger simulation takes as a starting point a model of equilibrium pricing



coordinate based on the fact that Menactra and Menveo were differentiated, but further showed that: (a) other market characteristics also made class member price coordination implausible (such as price opacity and complexity), (b) cited Sanofi and Novartis documents showing they did not coordinate on class member prices, (c) showed that Menactra and Menveo's price structures were not coordinated, and (d) showed using actual Menactra and Menveo prices that they did not coordinate on class member prices.<sup>1651</sup>

891. However, Professor Rubinfeld claims that I should have instead determined the firms' conjectures by using a conjectural variation model, which attempts to infer the firms' conjectures from price and customer substitution data.<sup>1652</sup> As just noted, this conflicts with his own prior academic writings, in which he states that the standard method for determining firms conjectures is to conclude that they are zero (indicating no coordination) in markets with differentiated products. Further, I have not been able to find a single reference to using a conjectural variation model in *any* of Professor Rubinfeld's academic papers on merger simulation. Thus, Professor Rubinfeld is asserting that I should have used an alternative methodology that both conflicts with the methodology he has used in his own prior academic literature and has never been discussed in his own prior academic literature.

892. The "conjectural variation model" that Professor Rubinfeld attempts to apply here assumes that Sanofi does not set whatever Menactra price is profit-maximizing given that the *actual* Menveo price then charged by Novartis. Instead, his model assumes that Sanofi sets the price that is profit-maximizing given a "conjecture" that Novartis will *perfectly monitor the Menactra price and immediately change* Menveo's price by a certain percentage in response to any Menactra price change. His model likewise assumes that Novartis does not set whatever Menveo price that is profit-maximizing given actual Menactra prices, but rather sets the price that is profit-maximizing assuming a "conjecture" that Sanofi will perfectly monitor Menveo prices and immediately change Menactra's price by a certain percentage in response to any Menveo price change. As will be discussed further below, if each firm set prices based on the actual prices of its rival, rather than based the conjecture that its rival will perfectly monitor its prices and

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(typically Bertrand), calibrates that model to the available industry data (such as prices and shares), and uses the model to predict post-merger price changes").

<sup>1651</sup> Elhauge Merits Report Part A.3.

<sup>1652</sup> Rubinfeld Report ¶712.

immediately respond with a certain price change, that is mathematically equivalent to a conjecture of zero. Thus, if the conjecture is zero (meaning there is no price coordination), the conjectural variation model is mathematically identical to the differentiated Bertrand model that I use, and which is typically used to analyze differentiated product markets (like the MCV4 market) in the academic literature (including by Professor Rubinfeld). In contrast, conjectures significantly above zero are consistent with the firms coordinating on price to some extent.

893. Professor Rubinfeld further assumes these conjectures are “linear,” meaning that firm A’s conjecture  $\lambda_A$  is that if firm A reduces its price by \$X, then firm B will immediately reduce its price by  $\lambda_A X$  in response, and that  $\lambda_A$  is a constant (i.e., it does not vary depending on the firms’ current prices). So for example, if Sanofi’s conjecture  $\lambda_S$  was 25%, then Sanofi sets the price that is profit-maximizing given a conjecture that if it reduces Menactra’s price by \$10, then Novartis will immediately respond by reducing Menveo’s price by \$2.50 (25% times \$10). Novartis’s conjecture could be different, for example 30% or 10%. In a conjectural variation model, each firm chooses the price that maximizes its individual profits, given its conjecture and its belief about its profit function. Therefore, in a conjectural variation model, the equilibrium Menactra price maximizes Sanofi’s profits, given Menveo’s equilibrium price *and* Sanofi’s “conjecture” that Novartis would immediately respond to any Menactra price change with a certain percentage change in the Menveo price. Likewise, the equilibrium Menveo price maximizes Novartis’s profits, given Menactra’s equilibrium price *and* Novartis’s “conjecture” about Sanofi’s immediate price response to any Menveo price change.

894. **a. Reasons Why the Conjectural Variation Model Does not Apply to the MCV4 Market.** Assuming the conjectural variation model applies to a market, one can use it to estimate the conjectures of each firm. But before explaining the mathematics behind how conjectures are calculated, I note at least three reasons why the conjectural variation model does not correctly model the MCV4 market.

895. First, in reality, firms cannot always perfectly monitor each other’s prices and respond with price changes that are so immediate that they prevent a firm from gaining any short term sales with price cuts before the price response. If the price changes are not accurately monitored by the rival or if its price responses are delayed, then the profit-maximizing price would have to be modeled differently to take into account missing or delayed price responses. This makes Professor Rubinfeld’s model inapplicable here because in the MCV4 market the evidence

indicates that firms cannot accurately monitor each other's actual prices to customers and immediately respond with price changes.<sup>1653</sup>

896. Second, in reality, firms might have no clear conjecture about how other firms will respond to their price changes. If the conjecture is uncertain, then firms will have more incentive to just price based on actual prices. This is another problem with Professor Rubinfeld's model because in the MCV4 market there is no evidence that the firms had any clear understanding about precisely how their rivals would respond to price changes. Indeed, his premise here that firms have clear conjectures conflicts with his argument elsewhere that one should reject models that require a firm to make decisions based on "other firm's payoffs" because "these are details that the first firm is unlikely to know."<sup>1654</sup> As I note above, his point that firms do not know each other's payoffs does not actually apply to my market division model because it finds a pure strategy if the foreclosure share level is high or the market differentiated (and here both were true) and because Sanofi clearly used a pure strategy since it had a rigid pricing structure.<sup>1655</sup> But his claim that firms do not know the payoffs of other firms sufficiently to take them into account in their own pricing contradicts his conjecture theory, which assumes that firms do have a clear enough understanding of how the other firm is likely to respond to their prices to price based on that conjecture. In contrast, the differentiated Bertrand competition model assumes no knowledge of other firm's payoffs because under it firms just choose the price that is profit-maximizing given the other firm's actual prices.

897. Third, because Professor Rubinfeld's model assumes constant conjectures, it would also be wrong if firms expect different percentage price responses at different price levels. For example, given the nature of differentiation in the MCV4 market, the profit-maximizing price given any price charged by the other firm does vary at different price levels in a curved fashion, as Professor Rubinfeld elsewhere acknowledges.<sup>1656</sup> Thus, even if (contrary to fact) firms in the MCV4 market were coordinating by pricing based on conjectures about immediate price responses, they would not be constant conjectures. This is another problem

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<sup>1653</sup> See *supra* Part VIII.A.3.

<sup>1654</sup> Rubinfeld Report ¶330. By a firm's "payoff," Professor Rubinfeld is referring to the profits the firm will earn at any given set of prices.

<sup>1655</sup> See *supra* Part IV.D.

<sup>1656</sup> See Rubinfeld Exhibit 25-2.

with Professor Rubinfeld's model because he incorrectly assumes constant conjectures.

898. **b. How Conjectures Are Calculated and Why Inflated Estimates of Consumer Substitution Rates Inflate the Conjecture.** Put mathematically, Firm A's conjecture  $\lambda_A$  about how much firm B will reduce its price in response to a firm A price decrease is Firm A's best guess of  $dP_b^*/dP_a$ , where  $P_b^*$  is firm B's best-response price and  $P_a$  is firm A's price. Firm A's best guess of  $dP_b^*/dP_a$  is always a part of firm A's profit-maximization equation (the first derivative of Firm A's profits with respect to firm A's price) when Firm A anticipates a price response by firm B. This is because the quantity sold by firm A if it reduces its price depends not only on the new price firm A chooses and firm B's current price, but also on how much firm A anticipates that firm B will reduce its price in response to firm A's price change.

899. For example, suppose there are two firms A, and B, in a differentiated duopoly and that they compete on price ( $p_a$  for firm A and  $p_b$  for firm B). For this hypothetical illustration, assume the firms' demand functions are:

$$q_a = K - p_a + p_b/2$$

$$q_b = K - p_b + p_a/2,$$

where  $q_a$  is the quantity for firm A and  $q_b$  is the quantity for firm B.<sup>1657</sup> Assuming both firms have constant marginal costs of zero for simplicity, Firm A's profit function is therefore:

$$\pi_a = p_a q_a = p_a [K - p_a + p_b/2] = p_a K - p_a^2 + (1/2)p_a p_b$$

To determine Firm A's profit-maximizing price, we take the first derivative of Firm A's profit function with respect to  $p_a$  and set it equal to zero:

$$d\pi_a/dp_a = K - 2p_a + (1/2)(p_a)(dp_b/dp_a) + (1/2)p_b$$

The  $dp_b/dp_a$  term reflects Firm A's conjecture that Firm B will immediately reduce  $p_b$  to a certain extent in response to Firm A reducing  $p_a$ . Thus, Firm A's "conjecture" is its best estimate of  $dp_b/dp_a$ . Economists call such a conjecture "consistent" if it is actually correct. This means Firm A's conjecture of  $dp_b/dp_a$  is "consistent" if it actually equals the first derivative of Firm B's best price response function with respect to  $p_a$ . Although any firm surely wants its conjecture to be as accurate as possible, in reality the price responses by other firms often are not

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<sup>1657</sup> To illustrate some points with as much mathematical simplicity as possible, these demand functions assume symmetric differentiation. However, as discussed at the end of this section, the actual differentiation in this market is asymmetric because the average consumer preference favors one of the firms.

immediate or easy to predict, and thus one should not expect conjectures to be exactly “consistent” in the actual world.

900. In this example, one can re-write Firm A’s conjecture (its best guess of  $dp_b/dp_a$ ) as the function  $\lambda_A$ . In theory this function  $\lambda_A$  could take any form, but Professor Rubinfeld assumes it is a constant that does not depend on either firm’s price. When economists assume that a conjecture equals a constant, they call that a “linear” conjecture. Substituting  $\lambda_A$  into firm A’s profit function, one gets:

$$d\pi_a/dp_a = K - 2p_a + (1/2)(p_a)(\lambda_A) + (1/2)p_b$$

The first-order condition for firm A that defines its profit-maximizing price  $P_a$  is thus:

$$0 = K - 2p_a + (1/2)(p_a)(\lambda_A) + (1/2)p_b$$

If one has observed actual  $p_a$  and  $p_b$  prices prevailing in the market, one can assume that they are profit-maximizing, and thus they satisfy this equation if the model correctly applies to the relevant market. If one also knows the value of  $K$  (perhaps from estimating the firms’ quantity demand functions using regression analysis), then the only unknown is  $\lambda_A$ . This would, assuming the model is right, allow one to solve for Firm A’s conjecture  $\lambda_A$  that is consistent with its actual pricing decisions and the way customers substitute between Firm A and Firm B depending on price. Here,  $\lambda_A = (2/p_a)[-K + 2p_a - 1/2p_b] = 4 - 2K/p_a - p_b/p_a$

901. For example, suppose you observed Firm A and Firm B pricing at the perfect coordination (monopoly) level. Under these demand assumptions, one solves for 100% monopoly level pricing by maximizing total market profits and assuming both firms charge the same price  $P$ .

$$\text{Market quantity } Q = q_a + q_b = K - P + 1/2P + K - P + 1/2P = 2K - P$$

$$\Pi = PQ = P(2K - P) = 2PK - P^2$$

$$d\Pi/dP = 2K - 2P = 0, \text{ therefore the 100\% monopoly price } P = K$$

Entering  $K$  in for  $p_a$  and  $p_b$  in our  $\lambda_A$  equation (derived from Firm A’s profit-maximization function) produces:

$$\lambda_A = 4 - 2K/p_a - p_b/p_a = 4 - 2(K/K) - K/K = 1,$$

therefore pricing at 100% monopoly levels indicates  $\lambda_A = 1$ .

902. Thus, if you observe that firm A and firm B are pricing at 100% monopoly (or perfect coordination) levels, then, *under this set of assumptions about the firms’ profit functions*, that indicates that firm A’s conjecture  $\lambda_A$  is that  $dp_b/p_a = 1$ , meaning that firm A sets the price that is profit-maximizing given a conjecture that if firm A reduces its price by  $\$X$ , then firm B will immediately respond by reducing  $p_b$  by  $\$X$  as well. This conjecture results in the perfect coordination outcome because Firm A believes that it cannot possibly gain any

market share by cutting price (or lose share by increasing price), given that Firm B will match any price cut (or price increase) instantly. Thus, firm A's price affects only the total market output, not its market share, and it consequently will profit-maximize by maximizing the profits of the entire market, which results in pricing the same way a 100% monopolist would. If firm A and firm B's conjectures both equal 1, then 100% monopoly pricing will result in symmetric differentiated Bertrand markets.

903. Now suppose that one instead observed firm A and firm B were pricing at the competitive level – i.e., at the price that would result from differentiated Bertrand competition. The differentiated Bertrand model assumes that each firm sets its price to maximize profits given the actual current price charged by its rival, rather than pricing based on a conjecture that the rival will perfectly monitor the first firm's price changes and have a certain price response that is so immediate that it prevents the first firm from gaining any short term sales with price cuts before the price response. Thus, by definition in the differentiated Bertrand model both firms conjectures  $\lambda_A$  and  $\lambda_b$  are equal to zero. But one can also solve for  $\lambda_A$  by solving for the differentiated Bertrand outcome prices and then solving for the conjectures that are consistent with such pricing. In this hypothetical market, differentiated Bertrand pricing results in prices of  $2/3K$ .<sup>1658</sup> Plugging a price of  $2/3K$  in for  $p_a$  and  $p_b$  into our  $\lambda_A$  solution indicates that the conjecture consistent with differentiated Bertrand pricing is:

$$\lambda_A = 4 - 2K/p_a - p_b/p_a = 4 - 2K(3/2)/K - (2/3K)/(2/3K) = 4 - 3 - 1 = 0$$

904. Thus, under these demand assumptions, competition on price in a symmetric differentiated market results in: (1) the differentiated Bertrand competition outcome if the firms' conjectures are equal to zero (meaning they price based on actual current prices, rather than based on a conjecture about an immediate expected price response by the other firm); and (2) the 100% monopoly (perfect coordination) outcome if the firms' conjectures are equal to 1 (meaning they price based on the expectation that the other firm will mimic any price changes exactly and immediately). If the firms' conjectures are between 0 and 1, that would imply some imperfect level of coordination, and would result in prices above the differentiated Bertrand outcome but below the 100% monopoly

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<sup>1658</sup> The first derivative of Firm A's profit function with respect to  $p_a$  is simply  $K - 2p_a + 1/2p_b$  because in differentiated Bertrand competition  $p_b$  is assumed to be a constant from Firm A's perspective. Given market symmetry, one can solve for the Bertrand outcome  $p = p_a = p_b$ , which in this case is  $2/3K$ .



outcome. The fact that conjectures of 0 result in the differentiated Bertrand competition outcome holds true for *all* differentiated models with competition on price. However, Professor Rubinfeld incorrectly asserts that a conjecture equal to 1 (100%) always indicates that the firms are engaging in the maximum possible amount of coordination (perfect coordination).<sup>1659</sup> That is true in *symmetric* duopolies, where each firm has the exact same product and the exact same cost structure, but it is not true in an asymmetric duopoly, like the MCV4 market, where one firm's product (Menactra) is on average preferred to the other firm's product (Menveo), and the firms' marginal costs differ.<sup>1660</sup>

905. Here, the MCV4 market prices have stayed at 100% monopoly levels despite entry from Menveo. Does that necessitate a finding that the firm's conjectures are very high (near 1 or even higher) indicating strong, if not perfect, coordination? No. One can use this simplified hypothetical to also illustrate how an anticompetitive restraint on customer decisions, such as the Bundle, could also produce 100% monopoly prices, even if the firms are not coordinating at all (i.e., even if the firms have conjectures of zero and thus are engaging in differentiated Bertrand competition). Recall that the key reason a conjecture of 100% results in monopoly pricing is it makes each firm believe that it cannot increase or decrease its share of the market by changing price. A conjecture of 100% is one way of making each firm believe that it cannot increase or decrease its share of the market by changing price because it makes each firm believe that the other firm will instantly mimic any price change. An anticompetitive restraint could achieve the same effect of preventing price changes from affecting the firm's market shares, even if the firms do not believe they will match each other's price cuts. For example, suppose vertical contracts created a market division that prevented Firm A's customers from switching to firm B (even if firm B were priced at a discount), and vice versa. This restraint would change the functions indicating the quantities each firm sells from:

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<sup>1659</sup> Rubinfeld Report ¶711, citing Nakamura, Yasuhiko, "Irrelevance of Conjectural Variation in a Mixed Duopoly: The Case of Relative Performance and Consistent Conjectures." *Theoretical Economics Letters*, 2013, 3, 5-11.

<sup>1660</sup> J. Nellie Liang, An Empirical Conjectural Variation Model of Oligopoly, FTC Working Paper No. 151 (February 1987), available at <https://www.ftc.gov/sites/default/files/documents/reports/empirical-conjectural-variation-model-oligopoly/wp151.pdf>. At 8 ("Under symmetry, the price conjectural variation estimates would be bounded by negative one and positive one. Where the demand and cost elasticities are allowed to differ by firm, however, the price conjectures are no longer bounded and thus may be difficult to interpret.").

Unrestrained quantity functions:

$$q_a = K - p_a + p_b/2$$

$$q_b = K - p_b + p_a/2$$

which can be rearranged as :

$$q_a = K - p_a/2 - (p_a - p_b)/2$$

$$q_b = K - p_b/2 - (p_b - p_a)/2$$

to

Restrained quantity functions:

$$qR_a = K - p_a/2$$

$$qR_b = K - p_b/2,$$

where  $qR_a$  is the restrained quantity for firm A and  $qR_b$  is the restrained quantity for firm B.

906. The restrained quantity functions are identical to the unrestrained quantity functions, except that firm A no longer loses customers to firm B when firm B lowers its price below firm A's price, and vice versa. In this extreme situation, where the restraint *completely* eliminates any customer substitution between the two firms, firm A's quantity does not depend at all on firm B's price and consequently Firm A's conjecture about firm B's price response becomes irrelevant. One can see this mathematically; the first derivative of Firm's A restrained profit function with respect to  $p_a$  does not include Firm A's conjecture of Firm B's price response ( $dp_b/dp_a$ ) when contracts prevent customers from switching between sellers at all:

$$\pi R_a = p_a qR_a = p_a [K - p_a/2] = p_a K - (1/2)p_a^2$$

$$d\pi R_a/dp_a = K - p_a,$$

Solving for the profit-maximizing Firm A price by setting  $d\pi R_a/dp_a$  equal to 0 means  $p_a = K$  at equilibrium for the restrained quantity functions, regardless of the firms' conjecture estimates.

907. In this restrained situation, B's price response ( $dp_b/dp_a$ ) is not even part of Firm A's profit-maximization function. Further, one can see this restraint has resulted in equilibrium pricing of  $p_a = K$ , the same as pricing under: (a) a 100% monopoly, and (b) a symmetric duopoly with perfect price coordination. Thus, merely observing that prices remain at monopoly levels following second entry does *not* necessitate a finding of conjectures equal to 100% (perfect coordination). Observing that 100% monopoly prices remain after second-entry instead indicates that neither firm believes it can gain a significant portion of customers by cutting price (or lose a significant portion by increasing price), which could be due to either: (a) conjectures equal to 100% - i.e., anticipating the other firm to perfectly

mimic any price cut, *or* (b) a restraint preventing customers from substituting between the firms in response to price differences.

908. More generally, one can define the firm's quantity functions as:

$$q_a = K - p_a/2 - \alpha(p_a - p_b)$$

$$q_b = K - p_b/2 - \alpha(p_b - p_a)$$

Here, the coefficient  $\alpha$  represents the extent to which customers substitute between Firm A and Firm B in response to relative price differences. In the unrestrained hypothetical,  $\alpha$  was  $1/2$ , while in the completely restrained hypothetical,  $\alpha$  was zero because the restraint locked customers into either firm A or firm B. Solving for each firm's conjecture  $\lambda$  (using the same process explained above) produces:

$$\lambda_a = -K/(\alpha p_a) + 1/\alpha + 2 - p_b/p_a$$

Plugging in  $\alpha = 1/2$  and  $p_a, p_b = K$  (monopoly prices) produces  $\lambda_a = 1$ , and plugging in  $\alpha = 1/2$ , and  $p_a, p_b = 2/3K$  (differentiated Bertrand prices), produces  $\lambda_a = 0$ , just like we found above in for the "unrestrained" quantity assumptions. The formula for  $\lambda_a$  is undefined (due to division by zero) if  $\alpha = 0$ , reflecting the fact that the conjecture is irrelevant if firm A's quantity does not depend on firm B's price. Given that symmetry in this hypothetical ensures that  $p_b = p_a$  at equilibrium, one can simplify this  $\lambda_a$  function to:

$$\lambda_a = 1 - (1/\alpha)(K/p - 1)$$

909. This simplified function illustrates that, the smaller  $\alpha$  is (i.e., the less customers substitute between the products in response to price differences), the lower the conjecture  $\lambda_a$  will be (i.e., the less price will indicate collusion) because  $K/p$  by definition is always greater than or equal to 1 and  $\alpha$  is in the denominator of the right-most term, which is negative. Thus, an inflated estimate of  $\alpha$  (the cross-elasticity between the firms) can cause one to incorrectly conclude that the firms' conjectures  $\lambda$  are higher than they actually are for any given set of observed profit-maximizing prices. Restraints on customer decisions should reduce  $\alpha$ , and thus failing to account for these restraints can inflate estimates of the conjectures. As I explain below in section A.4, Professor Rubinfeld has made that exact mistake.

910. As these mathematical illustrations show, if one assumes the conjectural variation model is accurate, one can solve for Firm A's conjecture about firm B's price response for a given pair of observed, profit-maximizing prices by firms A and B so long as one knows (or assumes): (1) firm A's profit function, and (2) an observed pair of firm A and firm B profit-maximizing

prices.<sup>1661</sup> Knowing firm A's profit function means knowing: (a) firm A's cost function (assumed to equal 0 in the above simplified example); and (b) the quantity of firm A's product purchased, given any set of firm A and firm B prices.

911. Professor Rubinfeld attempts to estimate each firm's conjecture based on the assumption that the firms' actual private sector prices reflect profit-maximizing levels resulting from competition on price with linear conjectures. Thus, in order to solve for Sanofi and Novartis' conjectures, Professor Rubinfeld must make assumptions about: (a) Menactra and Menveo's cost functions, and (b) the quantity of Menactra and Menveo that would be purchased in the actual world, given any set of Menactra and Menveo prices. Professor Rubinfeld uses my Menactra and Menveo marginal cost functions (constant marginal costs). But there are multiple serious errors in Professor Rubinfeld's assumptions about the quantity of Menactra and Menveo that would be purchased in the actual world, given any set of Menactra and Menveo private-sector prices. The next section describes how Professor Rubinfeld incorrectly assumes that 4P systems and the VFC program do not exist. Section 3 then describes the many errors in Professor Rubinfeld's "hidden regression" that cause him to incorrectly assume that customers are not unrestrained (and thus freely switch between Menveo and Menactra in response to price differences), which is what drives his incorrect conclusion that Menactra's 100% monopoly price must be explained by perfect price coordination. In other words, Professor Rubinfeld's conclusion that the firms were coordinating on price (had high conjectures) is driven by combining his correct observation that Menactra and Menveo were actually priced at 100% monopoly levels, with his incorrect conclusion that actual private customer substitution rates were high despite the Bundle.

## *2. Professor Rubinfeld Assumes 4P Systems and the VFC Program Do Not Exist*

912. Professor Rubinfeld's goal of estimating Sanofi and Novartis's conjectures based on Sanofi and Novartis's actual private-sector prices requires assumptions about how Menactra's and Menveo's quantities would change

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<sup>1661</sup> If one assumes linear conjectures, then firm A's conjecture is a constant that does not depend on price levels, meaning that one needs only a single pair of observed profit-maximizing prices to infer the conjectures. But under non-linear assumptions, Firm A's conjecture may be a function that depends on the firms' current prices. For example, firm A might conjecture a larger price response when prices are already very high than when prices are lower. In that case, one would need multiple data points of observed profit-maximizing prices to infer the shape of the firms' conjectures functions.

depending on Menactra and Menveo prices in the actual world. In other words, Professor Rubinfeld needs to estimate the firms' *actual* quantity functions, given the actual anticompetitive conduct in the market. I explain below that Professor Rubinfeld's quantity functions incorrectly assume that 4P system customers and the VFC program do not exist. These are both fundamental errors that make his entire conjectural variation model unreliable.

**913. a. Professor Rubinfeld Ignores the Entire MCV4 Market Besides PBGs and GPO-Access/Non-Contract Customers.** Professor Rubinfeld's quantity functions assume that no customers exist besides PBG members and GPO-Access/Non-Contract customers.<sup>1662</sup> That means Professor Rubinfeld's conjectural variation model ignores both 4P system customers and CDC VFC customers. Professor Rubinfeld did not even mention that he did this in his report, let alone provide any justifiable reason to assume that a large portion of the market does not exist. Nor would there be any valid justification. To be accurate, Professor Rubinfeld's analysis would have to account for all the ways in which Menactra and Menveo's quantities sold change when their private sector prices change. 4P system customers, as private-sector customers, would by definition face different Menactra prices if Sanofi changed its private-sector prices, so Professor Rubinfeld should include them (but does not).

914. According to both my analysis of the CDC VFC<sup>1663</sup> and Sanofi's own position in the case,<sup>1664</sup> Menactra and Menveo's VFC prices depend on their

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<sup>1662</sup> Professor Rubinfeld's backup program "2Segment\_Bertrand\_CV" shows that his quantity functions used to estimate the firms' conjectures are limited to only PBG customers (who he calls "contract" customers), and GPO-Access/Non-Contract customers (who he calls "non-contract" customers). Professor Rubinfeld's backup program "ALM\_Private.do" likewise shows that he limits his regressions attempting to estimate customer substitution patterns to PBG members and No-Contract/GPO Access customers.

<sup>1663</sup> Elhauge Merits Report Part VII.B.5. In my class reports, my but-for model incorporated 4P system customers but did not incorporate VFC prices because I was simply showing the feasibility of a classwide method rather than calculating the precise figures. As I said at the class stage, because VFC prices dynamically track the lowest private price, incorporating VFC pricing in to my analysis would not significantly change the general nature of the overcharges and thus does not bear of the feasibility of the classwide method. My merits report has confirmed this conclusion. But one does have to incorporate VFC pricing if, like Professor Rubinfeld, one is trying to use actual prices to estimate a conjecture in order to calculate the precise amount of damages at the merits stage.

private-sector prices, so Professor Rubinfeld should include CDC VFC customers too (but does not). Further, Professor Rubinfeld's assumption that all Sanofi "contract" customers are PBG members is wrong because in reality 4P system customers constituted 28% of all Menactra doses sold to "contract" customers since Menveo entry.<sup>1665</sup> Because 4P systems substituted on price less than PBG customers did,<sup>1666</sup> excluding 4P systems causes him to overestimate price substitution and thus overestimate the conjecture in a way that favors Sanofi.

915. By excluding both 4P system and CDC VFC sales, Professor Rubinfeld ignores 64% of the MCV4 doses that are affected by private sector prices, as **Figure 11** below shows.<sup>1667</sup>

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<sup>1664</sup> See Sanofi's February 13, 2015 Motion to Exclude Plaintiffs' Class Experts at 25 ("the VFC floor would need to be factored into the simulation . . . failure to do so is methodologically unsound.").

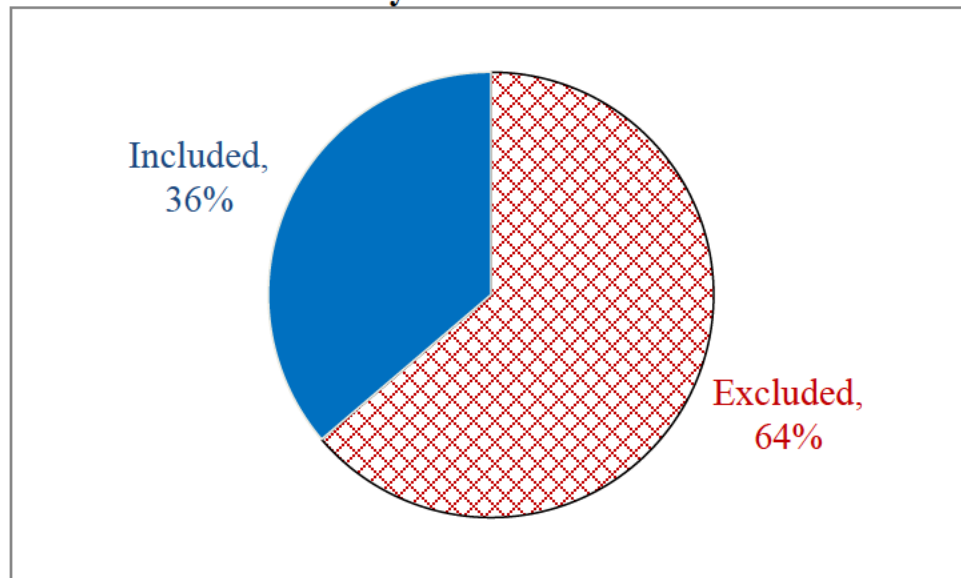
<sup>1665</sup> "MRebut50 % MCT K Dose Breakdown since Mvo entry.csv". Because Sanofi only began using 4P system contracts in mid-2009, and PBG contracts generally have a term of a year or more, many 4P system customers were not yet signed up on their 4P system contracts during the March 2009 to February 2010 period that Professor Rubinfeld used to estimate the ratio of "contract" MCV4 quantity to "non-contract" MCV4 quantity. See "2Segment\_Bertrand\_CV.nb" (from Rubinfeld backup). The percentage of "contract" Menactra doses sold to 4P systems after Menveo entry therefore better indicates the breakdown of "contract" customers during the period when Menveo was competing against Menactra.

<sup>1666</sup> See *infra* section A.4.

<sup>1667</sup> "MRebut50 Menactra Doses Depending on Priv Price, Incl vs Excl 3-2009 to 2-2010.csv". March 2009 to February 2010 is the period Professor Rubinfeld uses for determining his "contract" and "non-contract" relative market quantities.



**Figure 11: Professor Rubinfeld Analysis Ignores 64% of MCV4 Market That Is Affected By Private Sector Prices<sup>1668</sup>**



### 3. Professor Rubinfeld's "Hidden Regression": Specification and Results

916. In order to infer Sanofi and Novartis's conjectures from actual prices, Professor Rubinfeld must also make an assumption about how Sanofi and Novartis's shares of the MCV4 market *actually* changed as their relative prices changed. Thus, Professor Rubinfeld needs to develop a market share function that indicates how class members substituted between Menveo and Menactra based on relative price differences, *given the presence of the Bundle* in the actual world. Professor Rubinfeld's attempt to do so is the "hidden regression" he did not mention in his report or produce in his original backup. As noted above, his conclusion that Sanofi and Novartis must had high conjectures (i.e., must have been coordinating on price) depends entirely upon his "hidden regression" indicating that private customers in the actual world were able to freely substitute between Menveo and Menactra despite the Bundle.

917. Because Professor Rubinfeld did not even mention his "hidden regressions" in his report, here I present what he did. I then discuss the many errors in his hidden regression in the following section.

<sup>1668</sup> "MRebut50 Menactra Doses Depending on Priv Price, Incl vs Excl 3-2009 to 2-2010.csv".

918. **a. “Hidden Regression” Specification.** The “hidden regression” is really two regressions, each with the exact same specification, one run solely on PBG/GPO performance customers (Professor Rubinfeld calls these “contract” customers) and the other run solely on GPO-Access/Non-Contract customers (Professor Rubinfeld calls these “non-contract” customers). As noted above, Professor Rubinfeld’s conjectural variation model incorrectly assumes that 4P system customers do not exist, and this error extends to his “hidden regressions”: for unknown reasons, he does not attempt to run his “hidden regression” for 4P system customers. For brevity, I will refer to the PBG/GPO performance regression as the “PBG hidden regression” and the GPO-Access/Non-Contract regression as the “Disloyal hidden regression.” The functional form of these two regressions is:

$$\text{Probability (Choice}_d = \text{Menactra)} = e^A / (e^A + e^B)$$

Where

$$A = b_0 + b_1 * \text{January2013}_m + b_2 * \text{Median\_Menactra\_Price}_m$$

$$B = b_2 * \text{Median\_Menveo\_Price}_m$$

919. In this regression, each dose of MCV4 purchased,  $d$ , is a separate observation. The dependent variable,  $\text{Chose\_Menactra}_d$ , is a binary variable equal 1 (true) if the customer chose Menactra for that dose, and 0 (false) if the customer chose Menveo for that dose.

920. The coefficient  $b_0$  is a constant term which controls for the extent to which customers on average prefer either Menactra or Menveo (the regression results consistently suggest an average preference for Menactra).

921. Without any explanation, Professor Rubinfeld limits his “hidden regression” dataset to two 4-month periods: (1) November 2011-February 2012, and (2) November 2012-February 2013. Although I limited my regression estimating substitution in the *FSS segment of the market* to these two four-month periods, the theoretical justification for doing so in the FSS segment does not justify using these time windows in the private segment, as I explain below in section 4. Relatedly, Professor Rubinfeld’s “hidden regression” includes the variable  $\text{January2013}_m$ , which is a dummy variable equal to 1 (true) if the MCV4 dose in question is purchased during the 4-month period from November 2012-February 2013.

922. In the “PBG hidden regression”, the variable  $\text{Median\_Menactra\_Price}_m$  equals the median Menactra priced paid by PBG/GPO

Performance members in month  $m$ .<sup>1669</sup> Likewise, in his “Disloyal hidden regression” regression, the Median\_Menactra\_Price <sub>$m$</sub>  variable equals the median Menactra price paid by GPO/Access Non-contract customers in month  $m$ .<sup>1670</sup> The Median\_Menveo\_Price <sub>$m$</sub>  variable equals the median price paid for Menveo in month  $m$ .<sup>1671</sup> This means Professor Rubinfeld’s “hidden regression” wrongly assumes that, in any given month, all PBG/GPO performance customers face the exact same Menactra price and the exact same Menveo price (and likewise that, in any given month, all GPO-Access/Non-Contract customers face the exact same Menactra and Menveo prices). Consequently, his “hidden regression” by its construction *cannot* measure whether customers who face smaller Menactra price premiums are more likely to buy Menveo. I further explain below that, because of the way he has designed his regression, it will spuriously indicate that customers substitute significantly between Menveo and Menactra based on price even in the extreme situation where customers actually do not substitute *at all* between Menveo and Menactra.

923. **b. “Hidden Regression” Results.** Table 13 below presents the coefficients that Professor Rubinfeld’s “hidden regressions” estimated.

<b>Table 13: Professor Rubinfeld Private Regression Results</b>			
<b>Effect of an increase in price on the likelihood of purchasing Menactra<sup>1672</sup></b>			
<b>Coefficient</b>	<b>Effect Being Measured</b>	<b>Disloyal Estimate</b>	<b>PBG Estimate</b>
$b_2$	Price	-0.09	-0.13
$b_0$	General Menactra Preference	2.66	3.37
$b_1$	2013 Change in Preference	-0.28	-0.27

<sup>1669</sup> See “ALM\_Private.do”, produced by Sanofi counsel on February 22, 2016.

<sup>1670</sup> *Id.*

<sup>1671</sup> *Id.*

<sup>1672</sup> See “MRebut50 Professor Rubinfeld ALM Regressions Fast Re-creation.txt”. All coefficients have p-values with respect to a zero null hypothesis of less than 0.1%.

924. Note importantly that, because the functional form of this regression is non-linear (it is a logit regression), the size of the coefficient does not in itself provide an accurate estimate of the relative size of the effect.<sup>1673</sup> Table 14 below translates these coefficient estimates into estimates of the marginal effect of an increase in the Menactra price premium on Menactra share. Because this is a nonlinear regression, the marginal effect differs depending on the current Menactra price premium, so Table 14 presents these marginal effects at three price premiums (\$0, \$10, and \$20).

<b>Table 14: Marginal Effects of Menactra Price Premium on Menactra Share Implied by “Hidden Regression” Results<sup>1674</sup></b>		
<b>Menactra Premium</b>	<b>Disloyal Hidden Regression Marginal Effect</b>	<b>PBG Hidden Regression Marginal Effect</b>
\$0	-0.6%	-0.4%
\$10	-1.2%	-1.3%
\$20	-1.9%	-2.8%

925. These results should immediately make one skeptical of Professor Rubinfeld’s “hidden regressions.” Table 15 below shows that Professor Rubinfeld’s “hidden regression” implausibly indicates that PBG customers, 97% of whom are restrained by the Bundle,<sup>1675</sup> substitute between Menveo and Menactra based on price *more freely* than FSS customers, 0% of whom are restrained. For example, if the current Menactra premium is \$20, the marginal effect of price on Menactra share is more than two times larger for PBG members (-2.8%) than for FSS customers (-1.3%). That does not make sense given the many other types of evidence all indicating that the Bundle significantly restrained 90% of PBG

<sup>1673</sup> In nonlinear regressions like logit, the estimated marginal effect of one variable depends not only on its own coefficient estimate, but also the values of the other variables and their coefficients.

<sup>1674</sup> “MRebut50 Rubinfeld ALM Regressions Fast Re-creation.txt”. All of these marginal effects are set with the January2013 period dummy variable set equal to zero because Professor Rubinfeld uses this value of the January2013 dummy variable when translating his “hidden regression” results into conjecture estimates. “2Segment\_Bertrand\_CV.nb” (program from Rubinfeld backup).

<sup>1675</sup> PBG members are restrained by the Bundle only if they buy Sanofi Pediatric vaccines. 97% of Menactra sales under Sanofi PBG contracts were to customers who buy Sanofi Pediatric vaccines. “MRebut88 % of PBG met doses by ped buyers.csv”.



members from switching to Menveo even when Menveo was priced at a discount relative to Menactra.

<b>Table 15: Marginal Effects of Menactra Premium on Menactra Share “Hidden Regression” vs. FSS Regression<sup>1676</sup></b>			
<b>Menactra Premium</b>	<b>Disloyal Hidden Regression Marginal Effect</b>	<b>PBG Hidden Regression Marginal Effect</b>	<b>FSS Regression Marginal Effect</b>
\$0	-0.6%	-0.4%	-0.4%
\$10	-1.2%	-1.3%	-0.8%
\$20	-1.9%	-2.8%	-1.3%

#### 4. Errors in the “Hidden Regression”

926. Professor Rubinfeld’s hidden regression contains at least three unjustifiable errors that cause it to spuriously overestimate the extent to which private customers actually substituted between Menveo and Menactra based on price. Spuriously overestimating actual private customer substitution rates in turn causes Professor Rubinfeld to spuriously overestimate the firms’ conjectures. I show below that Professor Rubinfeld’s hidden regression is not only erroneous but also extremely sensitive to minor changes. For example, using an alternative regression sample period that is less subject to econometric bias flips the results of his “hidden regression” and reverses his conclusion that Menactra’s elevated actual-world prices cannot be explained by differentiated Bertrand competition.

927. **a. The Hidden Regression Ignores 4P System Customers.** The most obvious error in Professor Rubinfeld’s “hidden regression” is that he ignores 4P system customers. As noted above, 4P system customers constituted 28% of Sanofi contract customers in the actual world,<sup>1677</sup> so they should be included in any regression that is attempted to measure how much private customers substitute between Menveo and Menactra in the actual world. Professor Rubinfeld does not

<sup>1676</sup> “MRebut50 Rubinfeld ALM Regressions Fast Re-creation.txt” (“hidden regression” marginal effects); “MRebut296 FSS Regression Marginal Effects.txt” (FSS regression marginal effects). All of these marginal effects are set with the January2013 period dummy variable set equal to zero because Professor Rubinfeld uses this value of the January2013 dummy variable when translating his “hidden regression” results into conjecture estimates. “2Segment\_Bertrand\_CV.nb” (program from Rubinfeld backup).

<sup>1677</sup> “MRebut50 % MCT K Dose Breakdown since Mvo entry.csv”.

even mention that he excluded 4P system customers from his regression analysis, let alone provide any theoretical justification for it.

928. Running Professor Rubinfeld’s “hidden regression” for 4P system customers shows that, according to Professor Rubinfeld’s “hidden regression,” 4P system customers substitute between Menveo and Menactra *significantly* less than PBG members or Disloyal customers. Table 16 below compares the marginal effects of an increase in Menactra premium on Menactra share according to Professor Rubinfeld’s “hidden regression” between Disloyal, PBG, and 4P system customers (Professor Rubinfeld did not run the “hidden regression on 4P system customers).

<b>Table 16: Marginal Effects of Menactra Premium on Menactra Share “Hidden Regression” on 4P System Customers That Was Never Run<sup>1678</sup></b>			
<b>Menactra Premium</b>	<b>Disloyal Hidden Regression</b>	<b>PBG Hidden Regression</b>	<b>4P Hidden Regression</b>
\$0	-0.6%	-0.4%	-0.01%
\$10	-1.2%	-1.3%	-0.1%
\$20	-1.9%	-2.8%	-0.2%

929. Table 16 shows that marginal effects for 4P system customers are over 10 times smaller than the marginal effects for PBG and Disloyal customers. This means that, by excluding 4P system customers from his “hidden regression” and his conjectural variation model, Professor Rubinfeld has substantially overstated the extent to which private segment customers substitute between Menveo and Menactra based on price in the actual world. As I explained above in section A.1., overstating the extent of customer substitution in the actual world will necessarily cause his conjectural variation model to incorrectly inflate the firms’ conjectures, and thus Professor Rubinfeld’s estimates of how much they coordinated on price.

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<sup>1678</sup> “MRebut50 Rubinfeld ALM Regressions Fast Re-creation.txt” (“hidden regression” marginal effects); “MRebut56 Hidden Regression w 4P systems.txt” (“hidden regression” marginal effects if run on 4P system customers). All of these marginal effects are set with the January2013 period dummy variable set equal to zero because Professor Rubinfeld uses this value of the January2013 dummy variable when translating his “hidden regression” results into conjecture estimates. “2Segment\_Bertrand\_CV.nb” (program from Rubinfeld backup).



930. **b. Professor Rubinfeld's Results Are Extremely Sensitive to the Sample Period Used and Are Driven By Him Using a Sample Period When Customers "Stock Up" on Menveo.** Without any explanation, Professor Rubinfeld restricts his hidden regression sample to two 4-month time periods: (1) November 2011-February 2012, and (2) November 2012-February 2013.<sup>1679</sup> These are the same two 4-month periods I used in my regression estimating substitution in the FSS segment.<sup>1680</sup> But it is wrong for Professor Rubinfeld to assume that the regression sample period that is most appropriate for the analysis of how *FSS* customers respond to price changes is also the most appropriate sample period for his hidden regression, which analyzes how *private* customers substitute in response to price differences. Whereas there were at most 4 price changes to analyze in the FSS regression sample, in Professor Rubinfeld's hidden regression dataset the private Menactra price premium changes 24 times for PBG customers and 19 times for Disloyal customers.<sup>1681</sup> Moreover, there are confounding factors that can affect a regression analyzing private customer decisions that do not affect a regression analyzing FSS customer decisions (and vice versa).<sup>1682</sup> This means the regression sample period that minimizes econometric bias for a regression run on FSS customers may not be the sample period that minimizes econometric bias for a regression run on private customers, like Professor Rubinfeld's hidden regression.

931. Professor Rubinfeld skipped two fundamental steps that are necessary to assure that his hidden regression is accurate and that its results are robust: (i) he failed to check which sample periods would minimize the econometric bias of his hidden regression on private customers; and (ii) because there are multiple sample periods that minimize bias, he failed to check whether his ultimate conclusions were sensitive to the choice of sample period. I show below that performing these basic checks reveals that Professor Rubinfeld actually used a sample period that is significantly more subject to econometric bias than alternative sample periods. Moreover, I show that using an alternative sample period that is less subject to econometric bias completely flips Professor Rubinfeld's conclusions: it indicates that private customers *cannot* freely substitute between Menveo and Menactra in the actual world, and that Sanofi's ability to maintain 100% monopoly prices after

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<sup>1679</sup> See "ALM\_Private.do", produced by Sanofi counsel on February 22, 2016.

<sup>1680</sup> Elhauge Merits Report Part VII.B.4.

<sup>1681</sup> "MRebut51 full rubin alm price info extended period.xlsx".

<sup>1682</sup> For example, I show below that the "stock-up" effects confounds Professor Rubinfeld's hidden regression run on private sector customers but not my FSS customer substitution regression.

Menveo entry can be explained by differentiated Bertrand competition in a restrained market, rather than by price coordination.

932. i. Professor Rubinfeld Failed to Perform the Fundamental Step of Checking Which Sample Periods Would be Subject to Econometric Bias. Because econometric bias makes regression results inaccurate, checking to make sure that the design of the regression minimizes bias is one of the most important steps. The design of the regression includes not only the choice of variables and functional form, but also the regression sample period used, so one must check that the regression sample period used does not cause econometric bias.

933. In my opening merits report, I carefully checked which regression sample periods would minimize the econometric bias of my customer substitution regression run on FSS customers. My investigation revealed that on January 28, 2011, ACIP promulgated a recommendation that medical providers routinely administer a booster dose of MCV4 around the ages of 17-21 for children who received their first MCV4 immunization before their 16<sup>th</sup> birthday, and recommended using the same brand as used in the original immunization for the booster dose, which likely increased demand for Menactra relative to Menveo.<sup>1683</sup> I therefore concluded that a sample period that included this January 28, 2011 ACIP recommendation period could be confounded by the ACIP recommendation and therefore biased.<sup>1684</sup> Professor Rubinfeld does not appear to have any dispute with any of this logic.

934. However, Professor Rubinfeld did not even *attempt* to investigate which sample periods would minimize econometric bias in his hidden regression on private segment customers. As noted above, he did not even mention the hidden regression in his report. I have therefore done what Professor Rubinfeld should have done himself originally: checked which sample periods would minimize econometric bias in his hidden regression sample.

935. The potential bias from the January 28, 2011 ACIP recommendation applies to both my regression on FSS customers and Professor Rubinfeld's "hidden regression" on private customers, so one should avoid regression sample periods that include January 28, 2011 in Professor Rubinfeld's hidden regression too.

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<sup>1683</sup> Elhauge Merits Report ¶328.

<sup>1684</sup> *Id.*

ACIP retracted this recommendation on August 5, 2011,<sup>1685</sup> so one should also avoid regression sample periods that include August 5, 2011 in order to minimize econometric bias (none of my regression sample periods include August 5, 2011).

936. However, there is a *significant* source of econometric bias that affects Professor Rubinfeld's "hidden regression" on private customers but not my FSS regression customers: the "stock-up" effect. The reason is that, in the private segment, Novartis sometimes offered unusually large temporary discounts on Menveo that would induce customers who were going to eventually buy Menveo anyways to "stock up" in the periods with the temporary discounts. This will cause Professor Rubinfeld's "hidden regression" on private customers to spuriously indicate that customers are substituting between Menveo and Menactra based on price even in the extreme scenario where customers are not substituting at all and in fact are only "stocking up" on their preferred vaccine. In contrast, neither Sanofi nor Novartis offer these sorts of seasonal discounts to FSS customers,<sup>1686</sup> so this concern about the "stock-up" effect does not apply to my regression on FSS customers.

937. Figure 2 below graphs the private sector prices in Professor Rubinfeld's hidden regression dataset, and it shows that Novartis offered large temporary discounts on Menveo in October-December of 2011 and 2012. Internal Novartis documents confirm that Novartis offered special promotional prices for Menveo in those time periods.<sup>1687</sup> Because Menveo has a three-year shelf-life,<sup>1688</sup>

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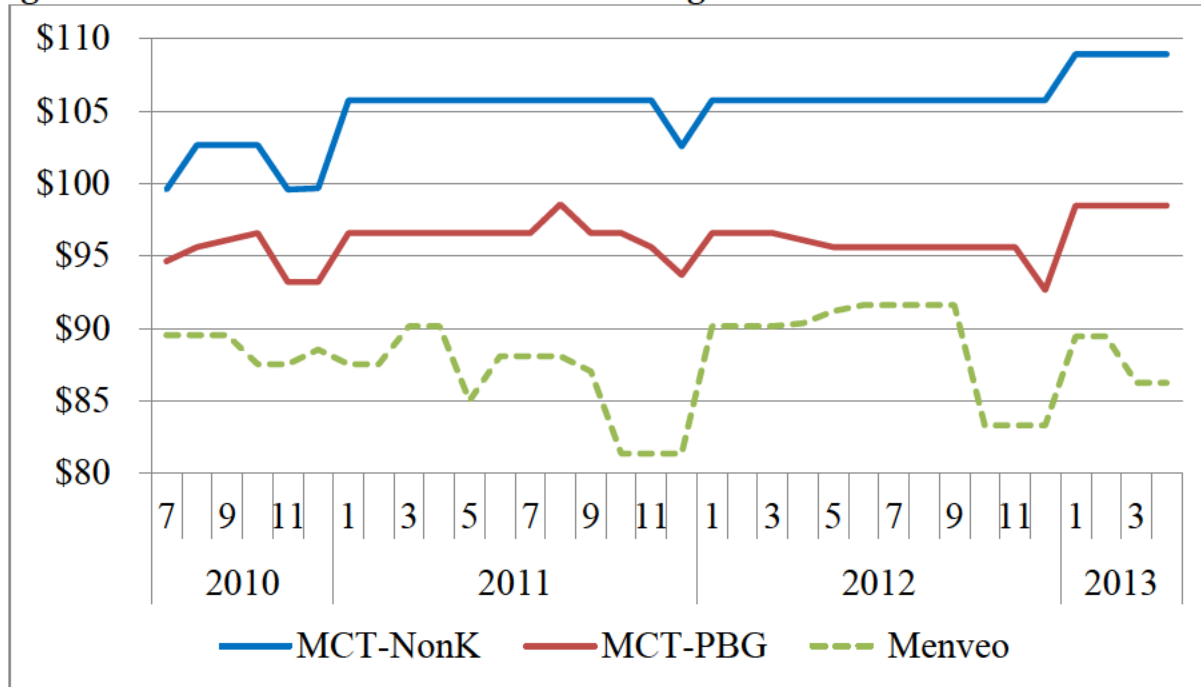
<sup>1685</sup> Elhauge Merits Report n. 330

<sup>1686</sup> "MRebut54 Menactra FSS prices.csv" (no temporary decreases in Menactra FSS prices); "MRebut54 Menveo FSS price range.csv" (no temporary decreases in Menveo FSS prices). Consequently, FSS customers cannot wait for seasonal discounts to stock up on their preferred MCV4 vaccine.

<sup>1687</sup> [REDACTED]

customers who were planning to buy Menveo anyways have a strong incentive to stock up on Menveo when Novartis offers these large seasonal discounts. Indeed, internal Sanofi documents acknowledge that Menveo customers would “stock up” on Menveo during these seasonal promotions.<sup>1689</sup>

**Figure 12: Professor Rubinfeld’s Private Regression Prices Over Time**<sup>1690</sup>



938. Customers stocking up on the MCV4 vaccine they were going to buy anyway does not reflect the substitution between Menveo and Menactra that Professor Rubinfeld’s hidden regression is supposed to measure. But this stock up effect causes Professor Rubinfeld’s regression to spuriously overestimate how

<sup>1688</sup> Elhauge Merits Report n.322.

<sup>1689</sup> SP 02088980 at SP 02088982 (October 9, 2012 internal Sanofi email stating “Menveo: Harvest the Savings Promotion – Novartis trying to stock up fridges from now until end of year.” This Sanofi email likewise acknowledged that Sanofi’s bundled penalties “solidif[y]” Sanofi’s business even when Menveo is offering these large seasonal discounts: “Our pricing team did an analysis [of the Menveo Harvest the Savings Promotion] and the Sanofi Pasteur entire portfolio offerings remains competitive and solidifies our business.”). The Sanofi employee who wrote this email, Courtney Gibbs, was Sanofi’s “Deputy Director of Product Management” at the time. See <https://www.linkedin.com/in/courtney-gibbs-45749862>.

<sup>1690</sup> “MRebut51 full rubin alm price info extended period.csv”.

much customers substitute between Menveo and Menactra in response to price differences. This is due to the fact that in the months with big seasonal discounts on Menveo: (a) the Menactra price premium is significantly higher than in other months; and (b) Menveo's market share is higher, not because customers who were going to buy Menactra switched to Menveo, but instead because customers who were planning to buy Menveo decided to stockpile Menveo that month.

939. A simplified hypothetical illustrates how Professor Rubinfeld's failure to control for the "stock-up" effect will spuriously inflate the hidden regression's estimate of how much customers substitute between Menveo and Menactra in response to price differences. Suppose there are only two customers in the market, MenactraFan and MenveoFan, and that each demands 12 doses of MCV4 per year. Assume for the purpose of this hypothetical that customers *never* substitute between Menactra and Menveo in response to price differences: MenactraFan is only willing to purchase Menactra, and MenveoFan is only willing to buy Menveo, and no price difference could ever change their minds. Thus, an accurate regression would indicate that the effect of relative price on a customer's decision about which MCV4 vaccine to buy is zero (no effect) in this hypothetical. Further assume that, like in reality, Sanofi sporadically and unpredictably offers occasional 3% seasonal discounts on Menactra,<sup>1691</sup> while Novartis regularly offers a larger 7-8% discount on Menveo in October-December.<sup>1692</sup> Because Menactra's price is relatively steady throughout the year, MenactraFan just buys as much MCV4 as it needs in any given month, 1 dose per month. But because Menveo's price drops dramatically at the end of each year, MenveoFan waits until the end of each year to stock up, buying 4 doses in each month in October-December, all at the discounted end-of-year Menveo price. In this hypothetical, the customers do not actually substitute between Menveo and Menactra at all, but Professor Rubinfeld's flawed regression methodology would falsely indicate that they substitute significantly in response to price differences. Table 17 below shows what Professor Rubinfeld's "hidden regression" dataset would look like under this hypothetical. It shows Menactra's share being substantially higher (100%) in the months where

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<sup>1691</sup> Elhauge Merits Report ¶385.

<sup>1692</sup> "MRebut51 full rubin alm price info extended period.csv". Professor Rubinfeld's "hidden regression" is limited to two periods: (1) November 2011-February 2012, and (2) November 2012-February 2013. In 2011, the median Menveo price was \$88/dose from Jan-Sep, compared to \$81/dose in Oct-Dec. In 2012, the median Menveo price was \$91/dose in Jan-Sep, compared to \$83/dose in Oct-Dec. Menveo's median price immediately increased back up to \$89/dose in January-February 2013.

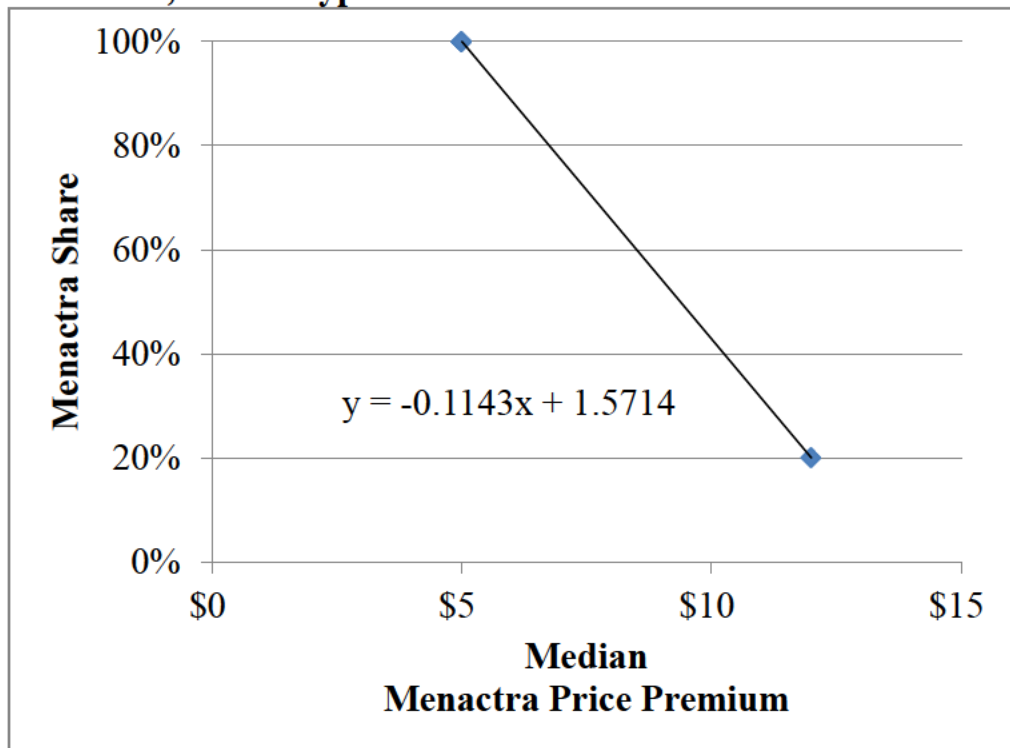
MenveoFan is not stocking up on Menveo, and substantially lower (20%) where MenveoFan is stocking up on Menveo.

<b>Table 17: Regression Dataset in Hypothetical Where Customers By Definition Do Not Substitute Between Menveo and Menactra in Response to Price Differences, But Do Stock Up on Menveo When its Price Is Cheapest, at the End of Each Year</b>				
<b>Month</b>	<b>MCT Purchases by MenactraFan</b>	<b>MVO Purchases by MenveoFan</b>	<b>MCT Share</b>	<b>Menactra Price Premium</b>
1	1	0	100%	\$5
2	1	0	100%	\$5
3	1	0	100%	\$5
4	1	0	100%	\$5
5	1	0	100%	\$5
6	1	0	100%	\$5
7	1	0	100%	\$5
8	1	0	100%	\$5
9	1	0	100%	\$5
10	1	4	20%	\$12
11	1	4	20%	\$12
12	1	4	20%	\$12

940. Figure 13 below plots Menactra's share against the median Menactra price premium for Professor Rubinfeld's "hidden regression" as applied to this hypothetical. The linear trend line shows that, if one ran a linear version of Professor Rubinfeld's "hidden regression," it would spuriously indicate that customers decided to switch 11% of their MCV4 from Menactra to Menveo for each dollar that Menveo was cheaper than Menactra. Thus, in this hypothetical Professor Rubinfeld's "hidden regression" will indicate that customers substitute significantly between Menveo and Menactra even when there actually is *no* substitution between Menveo and Menactra. This error makes Professor Rubinfeld's entire "hidden regression" analysis unreliable, which in turns makes his conjectural variation model unreliable because it hinges entirely on the hidden regression" results.



**Figure 13: Spurious Finding That Customers Switch 11% of their MCV4 from Menactra to Menveo for Each \$1 That Menveo is Cheaper than Menactra, When Hypothetical Assumed No Actual Substitution**



941. Professor Rubinfeld’s chosen sample periods for his “hidden regression” (November 2011-February 2012 and November 2012-January 2013) include *both* periods where Menveo was unusually discounted in a way that would cause customers who were going to buy Menveo anyways to “stock up” on Menveo. As the hypothetical above illustrates, this “stock-up” effect will introduce an econometric bias into Professor Rubinfeld’s hidden regression that causes it to spuriously overestimate the extent to which private customers substitute between Menveo and Menactra based on price. By selecting two time windows that both are confounded by the “stock up” effect, Professor Rubinfeld selected a sample period that is significantly more subject to econometric bias than alternative sample periods. I show in the next section that, if one uses an alternative sample period that is not subject to this “stock-up” effect, then Professor Rubinfeld’s hidden regression results (and the conclusions he draws from them) completely flip.

942. ii. Professor Rubinfeld Failed to Check Whether His Conclusions Were Sensitive to the Choice of Sample Period. When there are multiple possible regression design choices that all equally minimize econometric bias, it is standard

practice to check whether the results of the regression are sensitive to the particular design choices made. Professor Rubinfeld acknowledges this in his academic writing,<sup>1693</sup> but fails to perform *any* such sensitivity testing on his hidden regression.

943. In my opening merits report, I showed that my conclusions were not sensitive to the particular sample my FSS regression used. For my FSS customer substitution regression, there were ultimately only two distinct combinations of regression sample periods that equally minimized econometric bias. I limited the regression sample to four-month windows (two months before-and-after each price change being analyzed) in order to minimize potential confounding shifts in customer preferences.<sup>1694</sup> Professor Rubinfeld does not dispute that this minimizes bias, and indeed his own hidden regression likewise limits the sample to 4-month windows.<sup>1695</sup> In my FSS regression, there were at most four potential price changes to analyze because FSS prices changed only four times since Menveo entry and within the period for which we have data: (1) January 1, 2011; (2) January 1, 2012; (3) October 1, 2012; and (4) January 1, 2013.<sup>1696</sup> Further, I ruled out using the 4-month window surrounding the January 1, 2011 price change because it would be confounded by the January 28, 2011 ACIP recommendation, as noted above. This meant there were only three 4-month windows available that would equally minimize bias. Unfortunately, two of these overlapped (the October 1, 2012 window spanned August 2012 – December 2012 and the January 1, 2013 window spanned November 2012 – February 2013). Because those windows overlapped, using them both would require functionally assuming that preferences did not change during the seven month period of August 2012 – February 2013.<sup>1697</sup> This meant there were two possible combinations of regression sample periods that would equally minimize bias: (A) include the January 1, 2012 window and the October 1, 2012 window; or (B) include the January 1, 2012 window and the January 1, 2013 window. Because there were two alternative sample periods that equally minimized bias, I showed that my conclusions were not sensitive to which

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<sup>1693</sup> Daniel Rubinfeld, Reference Manual on Multiple Regression, Reference Manual on Scientific Evidence 322 (3d ed. 2011) (“The issue of robustness—whether regression results are sensitive to slight modifications in assumptions (e.g., that the data are measured accurately)—is of vital importance.”).

<sup>1694</sup> Elhauge Merits Report ¶330.

<sup>1695</sup> See “ALM\_Private.do”, produced by Sanofi counsel on February 22, 2016.

<sup>1696</sup> Elhauge Merits Report ¶¶327-331.

<sup>1697</sup> Elhauge Merits Report ¶331.

time sample period I used: the predicted overcharges and damages were essentially the same either way.<sup>1698</sup>

944. In contrast, Professor Rubinfeld did not check *at all* whether his “hidden regression” on private segment customers was sensitive to the regression sample chosen. For Professor Rubinfeld’s hidden regressions, there are over a *dozen* possible regression sample periods that equally minimize bias (though as explained above, the actual regression sample period he used is not one of them because it is biased by the stock-up effect). In Professor Rubinfeld’s hidden regression dataset, the Menactra price premium changes 24 times for PBG customers and 19 times for Disloyal customers.<sup>1699</sup> Any combination of four-month windows around those price changes will equally minimize bias so long as they exclude: (a) the January 28, 2011 ACIP booster recommendation change; (b) the August 5, 2011 ACIP booster recommendation retraction; (c) the October-December 2011 stock-up period; and (d) the October-December 2012 stock-up period. But Professor Rubinfeld did not run a *single* regression using any of those potential alternative sample periods, all of which would be less subject to econometric bias than his chosen sample period.

945. Running Professor Rubinfeld’s hidden regression on an alternative sample period that is less subject to econometric bias than his original sample period shows that his results are *extremely* sensitive to the sample period used. For example, suppose one kept *everything* about Professor Rubinfeld’s hidden regression exactly the same, except that instead of his regression sample period, one used the two four-month windows: (A) July-October 2010; and (B) February-May 2011.<sup>1700</sup> One should expect this to produce less biased results than Professor Rubinfeld’s original hidden regression because the sample period does *not* include any of the “stock-up” periods (nor does it include any of the dates where ACIP changed its recommendations in a way that would influence medical provider preferences for Menactra versus Menveo). This is also a natural pair of 4-month windows to select because it is the earliest possible pair one can select while

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<sup>1698</sup> Elhauge Merits Report ¶331.

<sup>1699</sup> “MRebut51 full rubin alm price info extended period.xlsx”.

<sup>1700</sup> To keep Professor Rubinfeld’s regression specification exactly the same, I likewise use a dummy variable set equal to 1 (“on”) for doses purchased in the second time window and 0 (“off”) for doses purchased in the first time window. This mimics the January2013Period dummy variable in Professor Rubinfeld’s original hidden regression, which is also set to on for the second window in that regression.

minimizing econometric bias.<sup>1701</sup> Table 18 shows that, if one uses this alternative, less-biased sample period, Professor Rubinfeld’s hidden regression indicates that private customers essentially do not substitute at all between Menveo and Menactra in response to price differences. This indicates that Professor Rubinfeld’s original hidden regression result depends on him introducing an econometric bias by using a sample that is confounded by the “stock-up” effect. These results also show that Professor Rubinfeld’s original hidden regression result—which spuriously indicated that private customers substituted significantly between Menveo and Menactra—is extremely sensitive to the regression sample period used.

<b>Table 18: Hidden Regression Marginal Effects Using Rubinfeld’s Biased Sample Period versus Less-Biased Alternative<sup>1702</sup></b>				
<b>Menactra Premium</b>	<b>Disloyal Hidden Regression</b>		<b>PBG Hidden Regression</b>	
	<b>Less-Biased Period</b>	<b>Rubinfeld Period</b>	<b>Less-Biased Period</b>	<b>Rubinfeld Period</b>
\$0	+0.5%	-0.6%	-0.03%	-0.4%
\$10	+0.4%	-1.2%	-0.04%	-1.3%
\$20	+0.3%	-1.9%	-0.04%	-2.8%

946. Moreover, the conclusions that Professor Rubinfeld draws from his “hidden regression” completely flip if one uses these alternative hidden regression results. As explained above, Professor Rubinfeld’s conclusion that Menactra and Menveo’s actual private prices can only be explained by price coordination hinges on his hidden regression indicating (wrongly) that private customers were able to substitute freely between Menveo and Menactra in the actual world. Plugging these alternative (but still erroneous) hidden regression results into Professor Rubinfeld’s (still erroneous) conjectural variation model produces inferred conjectures of 8% for Sanofi and 121% for Novartis.<sup>1703</sup> The Sanofi conjecture in particular is nowhere near the 104% conjecture that that Professor Rubinfeld obtained when he relied on his original hidden regression results. Granted, one should still not expect these alternative conjecture inferences to be accurate

<sup>1701</sup> Menveo entered in March 2010, but the IMS data needed to run this regression does not begin until July 2010.

<sup>1702</sup> “MRebut50 Rubinfeld ALM Regressions Fast Re-creation.txt” (original sample period); “MRebut59 hidden windows (7-10 2010 & 2-5 2011).txt” (alternative sample period). All marginal effects are set with only the time period dummies appropriate for 2010 on.

<sup>1703</sup> “MRebut30006 2Segment\_Bertrand\_CV (alt window 72010 22011).nb”.

because this alternative hidden regression and Professor Rubinfeld's conjectural variation model are still fatally flawed.<sup>1704</sup> But the fact that such a basic sensitivity test can totally flip the results indicates that Professor Rubinfeld's original hidden regression is not even remotely reliable or robust.

947. Similarly, using these alternative hidden regression results also indicates that Sanofi's ability to maintain 100% monopoly prices for Menactra after Menveo entry can be completely explained by differentiated Bertrand competition (i.e., no coordination on price). If one plugs the results of this alternative hidden regression into Professor Rubinfeld's model of the actual MCV4 private sector and solves for the differentiated Bertrand equilibrium,<sup>1705</sup> then the model predicts actual Menactra prices in 2010 of \$114.05 for customers on Sanofi's disloyal contract programs (GPO Access and Non-Contract) and \$102.60 for customers on Sanofi's PBG contract program.<sup>1706</sup> These are remarkably similar to (and slightly higher than) Menactra's actual contract prices in April 2010 for disloyal contract program customers (\$102.66) and PBG customers (\$98.56).<sup>1707</sup> This indicates that Sanofi's ability to maintain 100% monopoly Menactra prices after Menveo entry in the actual world can be explained by the Bundle restraining competition in a market with differentiated Bertrand competition (i.e., no price coordination), *even if one only makes one change (which reduces econometric bias) to Professor Rubinfeld's hidden regression model.*

948. There are many other alternative sample periods that one could also use for Professor Rubinfeld's hidden regression. Nonetheless, testing this alternative sample period shows that Professor Rubinfeld's original hidden regression results (and the conclusions he draws from them) are not even remotely robust to alternative specifications that reduce the econometric bias. Professor

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<sup>1704</sup> For example, the hidden regression still has the errors of: (1) assuming that 4P system customers do not exist; and (2) failing to control for the varying effects of the Bundle. And Professor Rubinfeld's conjectural variation model still has the additional error of assuming that the VFC does not exist.

<sup>1705</sup> This is mathematically identical to setting the firms' conjectures equal to zero in Professor Rubinfeld's conjectural variation model.

<sup>1706</sup> "MRebut30006 2Segment\_Bertrand\_CV (alt window 72010 22011).nb". The predicted actual price for Menveo under this scenario is \$163.07. *Id.* One should not expect this model to predict actual prices with great accuracy given that there are so many other errors in Professor Rubinfeld's hidden regression and his conjectural variation model that are not corrected.

<sup>1707</sup> "172 List and Contract Prices by Contract Type.xls".



Rubinfeld’s “hidden regression” is therefore not reliable, and nor are any of the results of his “conjectural variation model” because all of them depend on his unreliable “hidden regression” results.

949. **c. Professor Rubinfeld’s “Hidden Regression” Does Not Account For Variations in the Restraining Effect of the Bundle on Contract Customer Decisions.** A crucial failure of Professor Rubinfeld’s regressions is that he ignores both variation in customer purchases of Sanofi pediatrics and variation in the size of the bundled penalties. His regressions have no variables that account for: (1) the fact that contract customers who also buy Sanofi Pediatric vaccines face significant bundled penalties on those Sanofi Pediatric vaccines if they switch from Menactra to Menveo; or (2) variations in the amounts and types of Sanofi pediatrics purchased that alter the total magnitude of those bundled penalties. He thus does not consider the reality that variations in the size of bundled penalties alter the extent to which customers switch in response to Menveo-Menactra price differences.

*5. Professor Rubinfeld’s Estimates of Sanofi and Novartis’s Linear Conjectures (i.e., Whether Sanofi and Novartis Coordinated on Price)*

950. As I explained above in Part A.1, assuming the conjectural variation model is accurate for the relevant market, one can solve for Sanofi’s conjecture about Novartis’s price response so long as one knows (or assumes) (1) Sanofi’s profit function, and (2) an observed pair of Sanofi and Novartis profit-maximizing prices. Likewise, one can solve for Novartis’s conjecture about Sanofi’s price response so long as one knows (or assumes) (1) Novartis’s profit function, and (2) an observed pair of Sanofi and Novartis profit-maximizing prices.

951. **a. Professor Rubinfeld’s Assumed Actual-World Profit Functions Are Wrong For Numerous Reasons.** Sanofi’s actual world “profit function” is a mathematical function that (if accurate) indicates the profit Sanofi will earn given any set of Menactra and Menveo private sector prices ( $P_s$  and  $P_n$ , respectively). For any given segment of the market, Sanofi’s profit function equals  $(P_s - C_s) * Q_s$  where  $P_s$  equals Menactra’s price to that segment,  $C_s$  equals Menactra’s marginal cost, and  $Q_s$  equals the quantity of Menactra sold to that segment. The quantity of Menactra sold in a given segment at any given set of Menactra and Menveo prices is the total MCV4 demand in that segment multiplied times the market share Menactra would have with those relative Menactra and Menveo prices. Menveo’s seller’s profit function is defined the same way.



952. Here, Professor Rubinfeld uses his erroneous “hidden regression” results to estimate what Menactra’s private-segment market share would be at any given set of Menactra and Menveo prices. These errors include: (1) assuming away the existence of 4P system customers; (2) using a regression sample period that introduces econometric bias due to the “stock-up” effect; and (3) failing to account for the varying effects of the Bundle. Professor Rubinfeld’s profit functions are erroneous also because they ignore that private sector prices affect VFC prices.<sup>1708</sup>

953. These numerous errors in estimating Sanofi’s and Novartis’s profit functions mean that the resulting conjectures Professor Rubinfeld solves for are necessarily also erroneous. Rather than reflecting what conjectures are consistent with the firms’ profit-maximizing prices, Professor Rubinfeld solves for the conjectures that are consistent with his *assumed* profit function, which differs from reality in at least the above four crucial ways. In short, these numerous errors make Professor Rubinfeld’s estimated “conjectures” completely meaningless and unreliable.

954. **b. Professor Rubinfeld’s Erroneously Estimated Conjectures.** Professor Rubinfeld notes that his analysis results in estimated conjectures of 1.04 for Sanofi and 0.98 for Novartis.<sup>1709</sup> Mathematically, a Sanofi conjecture of 1.04 would mean that Sanofi expected that, if it reduced Menactra’s price by \$X, then Novartis would reduce Menveo’s price by 1.04 times \$X. Likewise, a Novartis conjecture of 0.98 would mean that Novartis expected that, if it reduced Menveo’s price by \$Y, then Sanofi would reduce Menactra’s price by 0.98 times \$Y. But as I explained above, Professor Rubinfeld’s methodology contains so many major errors that these resulting conjecture estimates tell us nothing about what Sanofi and Novartis’s actual conjectures are.

955. Moreover, Professor Rubinfeld asserts incorrectly that conjectures close to 1 in this situation are consistent with Sanofi and Novartis “having engaged in a high degree of price coordination.”<sup>1710</sup> Professor Rubinfeld’s claim appears to be based on his incorrect understanding that the maximum possible conjecture is 1, when in reality the maximum possible conjecture is 1 *only in perfectly symmetric markets*, whereas here there is no dispute that the MCV4 market is not symmetric

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<sup>1708</sup> See *infra* Part I.A.2.

<sup>1709</sup> Rubinfeld Report ¶713.

<sup>1710</sup> Rubinfeld Report ¶713.

because customers on average prefer Menactra.<sup>1711</sup> Outside of stylized hypothetical markets that are exactly symmetric, there is no such rule of thumb that conjectures around 1 indicate a high degree of coordination.<sup>1712</sup>

956. Nonetheless, the substantial evidence indicating that Sanofi and Novartis were not actually able to coordinate on class member prices is further evidence confirming that Professor Rubinfeld's conjecture estimates are wrong. As I explained in Part VII.A.3 of my opening merits report and in Part VIII.A of this report, there is not only a lack of evidence indicating coordination on class member prices, but substantial affirmative evidence contradicting coordination on class member prices. Therefore, one should expect an accurate estimate of the firms' conjectures to be close to zero, the value that is consistent with competition on price without coordination.

***B. Professor Rubinfeld's Translation of His Erroneous Conjecture Estimates into Purported But-for Prices***

957. After incorrectly estimating Sanofi's and Novartis's conjectures in the actual world at actual private sector prices, Professor Rubinfeld attempts to determine what but-for Menactra and Menveo prices would be, assuming the firms held these erroneous conjectures. To do so, Professor Rubinfeld kept every aspect of my differentiated Bertrand model the same, except that he added the assumption that Sanofi had a conjecture of 1.04 and Novartis had a conjecture of 0.98.<sup>1713</sup> In contrast, because I properly used a differentiated Bertrand competition model, my original model functionally assumes that Sanofi and Novartis's conjectures were both 0. Professor Rubinfeld exacerbates the errors he made when trying to estimate the firms' actual conjectures by making additional errors when he tries to translate those conjecture estimates into but-for prices.

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<sup>1711</sup> Elhauge Merits Report ¶335.

<sup>1712</sup> J. Nellie Liang, An Empirical Conjectural Variation Model of Oligopoly, FTC Working Paper No. 151 (February 1987), available at <https://www.ftc.gov/sites/default/files/documents/reports/empirical-conjectural-variation-model-oligopoly/wp151.pdf>. At 8 ("Under symmetry, the price conjectural variation estimates would be bounded by negative one and positive one. Where the demand and cost elasticities are allowed to differ by firm, however, the price conjectures are no longer bounded and thus may be difficult to interpret.").

<sup>1713</sup> Rubinfeld Report ¶713.

*1. Professor Rubinfeld Incorrectly Assumes that the Firms' Conjectures Would Be the Same in the But-for World*

958. Even assuming (contrary to fact) that Professor Rubinfeld's estimates of Sanofi and Novartis's conjectures at *actual* prices were correct, his but-for price estimates would still be unreliable because he incorrectly assumes that Sanofi and Novartis's conjectures would be the same in the but-for world as they were in the actual world. Recall that Sanofi's conjecture depends on its best estimate of how much Novartis would reduce Menveo's price in response to Sanofi reducing Menactra's price (and vice versa for Novartis's conjecture). In other words, Sanofi's conjecture depends on its best guess of Novartis's profit-maximizing price response. Therefore, if Novartis's profit-maximizing price response function in the actual world differs from its profit-maximizing price response function in the but-for world, then Sanofi's conjecture should also differ between the actual world and the but-for world. Here, there are at least two major reasons why Novartis's profit-maximizing price response function would be different in the but-for world: (a) the firms' but-for prices would be different than their actual prices, and (b) the firms' but-for profit functions would be different than their actual profit functions because the actual world profit functions must account for the restraining effect of the Bundle and bundled penalties, whereas the but-for profit functions would not. Because Novartis's profit-maximizing best response function would definitely be different in the but-for world, Sanofi's conjecture would also be different. Professor Rubinfeld is therefore wrong to assume that Sanofi and Novartis's conjectures in the actual world would be the same in the but-for world.

959. In contrast, in a differentiated Bertrand model (like the one I use), one should expect the conjectures to be the same (zero) in both the actual world and the but-for world because the basis for that zero conjecture is the firms' inability to coordinate on price, which would not change between the actual and but-for worlds.

*2. Professor Rubinfeld's Nonsensical \$134 and \$157 But-for Menactra and Menveo Price Estimates Confirm the Errors in His Methodology*

960. After calculating for his erroneous estimates of Sanofi and Novartis's conjectures, Professor Rubinfeld attempts to translate them into but-for price estimates. To calculate what he claims to be but-for prices based on his conjecture estimates, Professor Rubinfeld keeps my but-for price model the same in every

way *except* for plugging in his incorrect conjecture estimates.<sup>1714</sup> Professor Rubinfeld asserts that doing so indicates but-for prices of \$134.34 for Menactra and \$157.57 for Menveo. In short, he predicts that, without the Bundle, Sanofi would have responded to competitive entry by *increasing* Menactra's prices by over 30% over pre-entry absolute monopoly levels, and Menveo would have entered at a price that was 50% higher than the pre-entry monopoly price.<sup>1715</sup> Further, his but-for prediction is that the Menveo price would have been at a \$20 premium to the but-for Menactra price, which makes especially little sense given that Menveo is less preferred on average than Menactra.

961. There is no evidence in this case suggesting that Professor Rubinfeld's predicted but-for prices are remotely plausible. His prediction clearly runs contrary to all standard antitrust economics. It is unsurprising that Professor Rubinfeld's methodology produces absurd but-for price estimates because it contains so many compounding errors that he might as well be picking a random number out of a hat. His methodology should not be expected to approximate prices but-for the Bundle in any way.

*3. Showing That Price Coordination Would Cause Menactra Prices to Remain at Monopoly Levels in an Unrestrained Market Does Not Show the Firms Coordinated or that the Market was Unrestrained*

962. In a footnote Professor Rubinfeld states he "calculated the theoretical conjectures implied by Professor Elhauge's but-for model using actual prices. Those values are 0.5 and 0.84 for Sanofi and Novartis, respectively."<sup>1716</sup> To be clear, this does *not* indicate in any way that Sanofi and Novartis were coordinating on price in the actual world, or that my but-for price estimates are incorrect in any way. Mathematically, this means that, assuming the MCV4 market was not distorted by anticompetitive conduct, one would observe prices as high as Sanofi and Novartis's actual private sector prices only if Sanofi and Novartis were coordinating enough on price that their conjectures were at least 0.5 and 0.84 for Sanofi and Novartis, respectively.

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<sup>1714</sup> My differentiated Bertrand model is mathematically the same as a conjectural variation model with competition on price where the firms' linear conjectures are 0, indicating that they cannot coordinate on price. Professor Rubinfeld is thus functionally using his incorrect estimates of the firms' conjectures instead of the zero conjecture that I properly used, given the evidence that the firms were unable to coordinate on price.

<sup>1715</sup> Rubinfeld Report ¶713.

<sup>1716</sup> Rubinfeld Report n. 886.

963. To put Professor Rubinfeld's claim in perspective, one can similarly show that Menactra and Menveo's actual private sector prices are consistent with differentiated Bertrand competition (i.e., no coordination) in a market anticompetitively divided by vertical restraints. As I explained above in section A.1, vertical contracts that restrain customers from switching between manufacturers will functionally reduce the extent to which customer substitute between the manufacturers' products in response to relative price differences. Thus, in my differentiated Bertrand model (or Professor Rubinfeld's conjectural variation model), one would expect the Bundle's restraint to reduce the extent to which customers substituted between Menveo and Menactra based on price. As I showed above in section A.4, even Professor Rubinfeld's own "hidden regression" indicates that private customers were essentially not able to substitute between Menveo and Menactra *at all* in the actual world if one merely uses an alternative regression sample period that is less subject to econometric bias (but leaves every other part of Professor Rubinfeld's regression the same).

964. I also showed that, if one plugs the results of this alternative hidden regression into Professor Rubinfeld's model of the actual MCV4 private sector and solves for the differentiated Bertrand equilibrium, then his model predicts actual Menactra prices in 2010 of \$114.05 for customers on Sanofi's disloyal contract programs (GPO Access and Non-Contract) and \$102.60 for customers on Sanofi's PBG contract program.<sup>1717</sup> These are remarkably similar to (and slightly higher than) Menactra's actual contract prices in April 2010 for disloyal contract program customers (\$102.66) and PBG customers (\$98.56).<sup>1718</sup> This indicates that, even if one accepts Professor Rubinfeld's conjectural variation model, Sanofi's ability to maintain 100% monopoly Menactra prices after Menveo entry in the actual world can be fully explained by Bundle restraining competition in a market with differentiated Bertrand competition (i.e., no price coordination), *even if one corrects only one of the errors he made in his hidden regression.*

965. Professor Rubinfeld asserts in this same footnote that it "any set of conjectures whose elements exceed (0.5, 0.84) will yield higher but-for prices than

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<sup>1717</sup> "MRebut30006 2Segment\_Bertrand\_CV (alt window 72010 22011).nb". The predicted actual price for Menveo under this scenario is \$163.07. *Id.* One should not expect this model to predict actual prices with great accuracy given that there are so many other errors in Professor Rubinfeld's hidden regression and his conjectural variation model that are not corrected.

<sup>1718</sup> "172 List and Contract Prices by Contract Type.xls".

actual prices in the marketplace.”<sup>1719</sup> Given that the evidence affirmatively indicates that Sanofi and Novartis were *not* coordinating on class member prices, and thus that the appropriate estimate for their conjectures is zero, this point does not refute my analysis.

## X. PROFESSOR RUBINFELD’S YARDSTICKS ARE UNRELIABLE

966. Professor Rubinfeld acknowledges that a “benchmark” before-and-after approach to estimating damages is not feasible here because there was no “before” period of competition without the Bundle.<sup>1720</sup>

967. Professor Rubinfeld proposes a “yardstick” method to attempt to determine whether (or how much) Sanofi would have reduced Menactra’s price in response to Menveo entry without the Bundle. His “yardsticks” analyze how prices respond to entry of a competing vaccine (or biologic pharmaceutical medicine) to markets formerly dominated by a single incumbent in multiple purportedly analogous markets.<sup>1721</sup> Professor Rubinfeld proposes five yardstick markets from the vaccine industry<sup>1722</sup> and five yardstick markets from the biologics industry.<sup>1723</sup> Although yardstick analysis *can* reliably measure but-for prices in certain situations, Professor Rubinfeld made three fundamental errors here, each of which independently renders all of his “yardstick” analyses unreliable. Section A below explains these three fundamental errors, Section B explains how they apply to his vaccine industry yardsticks, and Section C explains how they apply to his biologic industry yardsticks.

968. The absence of valid yardsticks in this case is not surprising given Professor Rubinfeld’s admission that bundling is endemic to the vaccine industry.<sup>1724</sup> The goal of a yardstick is to determine how prices in the MCV4 market would have responded to entry *without* the Bundle, and one plainly cannot do that using yardstick markets *with* a bundle. Indeed, Professor Rubinfeld has

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<sup>1719</sup> Rubinfeld Report n. 886.

<sup>1720</sup> Rubinfeld Report ¶668.

<sup>1721</sup> Rubinfeld Report ¶668.

<sup>1722</sup> Rubinfeld Report Part X.C.1.

<sup>1723</sup> Rubinfeld Report Part X.C.2.

<sup>1724</sup> Rubinfeld Report ¶275.



previously acknowledged that “it is quite possible for there to be no suitable yardstick in some cases.”<sup>1725</sup> This is one such case.

***A. Three Fundamental Errors Make All of Professor Rubinfeld’s Yardsticks Useless***

***1. Professor Rubinfeld Failed to Establish That His Yardsticks Are Free From Anticompetitive Conduct***

969. Professor Rubinfeld does not dispute the fundamental point that another market could be an economically valid “yardstick” only if we knew it was free of anticompetitive conduct.<sup>1726</sup> Yet Professor Rubinfeld fails to establish that *any* of his proposed yardsticks are actually free from anticompetitive conduct. This is a significant omission because Professor Rubinfeld’s selection criteria for his yardstick markets—that only two firms compete in the market—makes it highly likely that firms in those markets have the market power to engage in anticompetitive conduct.<sup>1727</sup> Moreover, Professor Rubinfeld explicitly acknowledges elsewhere in his report that bundling is endemic to the vaccine industry.<sup>1728</sup> Given that we know all of his yardstick markets include potentially anticompetitive bundling, discovery in all of these other yardsticks is far too limited to conclude that one affirmatively knows that there is no anticompetitive bundling (or other anticompetitive conduct) distorting the prices in Professor Rubinfeld’s yardstick markets. This failure alone makes his “yardstick” analysis invalid.

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<sup>1725</sup> Daniel Rubinfeld, *Antitrust Damages*, in the RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 378, 380 (ed. Elhauge 2013).

<sup>1726</sup> Elhauge Merits Report ¶365, citing ABA SECTION OF ANTITRUST LAW, ECONOMETRICS 319 (2d ed. 2014) (“The benchmark market (or markets) can be a different area or a different end-use market. The key is that the benchmarks (the control group) were unaffected by the alleged anticompetitive conduct.”).

<sup>1727</sup> Professor Rubinfeld’s own Microeconomics textbook acknowledges that firms will have more market power (and thus greater ability to profit from anticompetitive conduct) the fewer firms are in a market and the more concentrated the market. RUBINFELD & PINDYCK, MICROECONOMICS 376 (8<sup>th</sup> ed. 2013) (“The second determinant of a firm’s demand curve –and thus of its monopoly power- is the number of firms in its market. Other things being equal, the monopoly power of each firm will fall as the number of firms increases.”).

<sup>1728</sup> Rubinfeld Report ¶275.

2. *Professor Rubinfeld Fails to Control for Any Differences between the MCV4 Market and His Yardstick Markets*

970. As I previously stated, “Another vaccine market could be an economically valid benchmark only if it also had the same market conditions as MCV4 market or we could quantify and control for any differences.”<sup>1729</sup> In his report, Professor Rubinfeld claims that my statement “overstates the requisite criteria for a reasonable yardstick.”<sup>1730</sup> But his claim contradicts his own statements, both in elsewhere in his report and in his academic writings, that agree precisely with my statement that “yardstick” markets are not reliable estimates of but-for prices if one does not control for key differences between the yardstick markets and the market at issue, as the following paragraphs show.

971. For example, when I rebutted Sanofi’s false claim that the but-for Menactra and Menveo prices my model predicted were absurdly low and irrational by showing that they were actually *higher* than the prices of many other Sanofi vaccines, Professor Rubinfeld called that comparison “meaningless” because:

“there is no reason to expect that Menactra should be priced at the same level as Sanofi’s *pediatric* vaccines. They are different vaccines that inoculate against different diseases, are administered to a different (and younger) population, have different manufacturing process, with different costs of production, and face different market conditions.”<sup>1731</sup>

All of those differences also apply to the comparison he makes here between different vaccines using his yardstick approach because all his yardstick markets “are different vaccines that inoculate against different diseases, are administered to a different (and younger) population, have different manufacturing process, with different costs of production, and face different market conditions.” Thus, his statement there that such comparisons are “meaningless,” even for purposes of assessing a claim that estimated but-for prices are not absurd, clearly contradicts his claim here that comparisons are highly reliable for quantifying damages.

972. Likewise, in Professor Rubinfeld’s academic publications, he has previously explained that:

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<sup>1729</sup> Elhauge Merits Report ¶366.

<sup>1730</sup> Rubinfeld Report ¶69.1

<sup>1731</sup> Rubinfeld Report ¶661. *See supra* Part VIII.I (discussing this issue).

“Under the yardstick approach, damages are measured by obtaining a ‘but-for price’ from a market (the ‘comparable market’) that **closely approximates** the market in which the violation occurred. . . . Ideally, **the comparable market product should reflect the same degree of competition, the same costs, and the same demand conditions** that would have prevailed in the market at issue had there been **no wrongful behavior**. Of course, it is **quite possible for there to be no suitable yardstick in some cases**. If an appropriate yardstick is available, it is **important to take into account any differences in costs and the extent of competition between the yardstick market and the market at issue in the but-for world.**”<sup>1732</sup>

973. Similarly, when Professor Rubinfeld discusses the benchmark approach in this same article, he summarizes his view of the yardstick approach by stating:

“As with the yardstick approach, it is *essential* that the non-impact period be *as similar as possible* to the impact period. This *requires that one take into account any cost, demand, or competitive differences* between the non-impact behavior and the impact period, but for the wrongful behavior.”<sup>1733</sup>

In short, his academic writings state criteria for a reasonable yardstick that are the same or stronger than those I set out.

974. But in this case, contrary to his own articulated criteria, Professor Rubinfeld does not even *investigate* whether his candidate yardstick markets “closely approximate” the MCV4 market, let alone “take into account any cost, demand, or competitive differences.” A relevant difference between the MCV4 market and Professor Rubinfeld’s proposed “yardstick” market would be one that affects how much second-entry should reduce the price of the incumbent product. There are at least nine such relevant factors that will vary between markets, but Professor Rubinfeld does not investigate a single one:

1. The **market demand elasticity** (i.e., how much market demand increases when price decreases). The more market demand expands in response to lower prices, the more second entry should reduce incumbent prices.

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<sup>1732</sup> Daniel Rubinfeld, *Antitrust Damages*, in the RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 378, 380 (ed. Elhauge 2013).

<sup>1733</sup> *Id.* at 381.

2. The **average preference for the incumbent vaccine**. The effect of second-entry on the incumbent vaccine price will depend on whether customers on average prefer the incumbent to the second-entrant, as well as the intensity of any such preference.
3. The **level and nature of demand differentiation**. If the market is segmented so some customers are price sensitive but others have a price insensitive preference for the incumbent, then entry may not lower incumbent prices while shifting market share to lower priced entrant.<sup>1734</sup> If customer preferences are so differentiated that second entry causes the market to effectively divide into two separate markets with little substitution, then second entry might not reduce incumbent prices and leave the entrant also pricing at monopoly levels.<sup>1735</sup>
4. The **cross-elasticity of demand** within the market (i.e., how much customers substitute between the two products in the market). The more customers switch between products in response to small price differences, the more second-entry should reduce incumbent prices.
5. **Cost changes during entry**. If the incumbent's marginal costs are decreasing during second-entry, then its prices should decrease more during second-entry.
6. **Demand changes during entry**. If overall market demand is shrinking during second-entry, then the incumbent's prices should decrease more during second-entry.
7. **Degree of Coordination**. It is easier for firms to coordinate in some markets than it is in others. For example, it is harder to coordinate on price where the products are differentiated, prices are not transparent, and prices are complex (like in the MCV4 market). The harder it is for firms to coordinate on price, the more second-entry should reduce incumbent prices.
8. **Whether the firms compete on price or quantity**. Second-entry affects profit-maximizing incumbent prices differently if firms compete on quantity instead of price.<sup>1736</sup> I have shown above that

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<sup>1734</sup> See Elhauge Merits Report Part VI.B.4; *supra* Part VII.A.

<sup>1735</sup> See Elhauge Merits Report Part VI.B.5; *supra* Part VII.A.

<sup>1736</sup> Professor Rubinfeld's own Microeconomics textbook explains how equilibrium profit-maximizing prices when firms compete on quantity than when firms compete on price. RUBINFELD & PINDYCK, MICROECONOMICS 458-467 (8<sup>th</sup> ed. 2013) (illustrating how Cournot model, which assumes competition on quantity, produces different reaction curves and equilibrium prices than the Bertrand or differentiated Bertrand models, which assume competition on price).

there was significant excess production capacity for both Menveo and Menactra.<sup>1737</sup> In contrast, Professor Rubinfeld has stated that there often is not excess capacity in other vaccine markets,<sup>1738</sup> which indicates that firms might compete on quantity in some of his yardstick vaccine markets.

9. **Presence of anticompetitive conduct.** Anticompetitive conduct can prevent second-entry from reducing incumbent prices, as this case has shown directly. If a yardstick market is affected by any anticompetitive conduct, it cannot be a valid yardstick for how prices would respond to entry without anticompetitive conduct.

975. Professor Rubinfeld was clearly aware of the fact that all of these factors affect how much second-entry will reduce incumbent prices because I explicitly accounted for all of them in my differentiated Bertrand model of but-for Menactra and Menveo prices following Menveo entry.<sup>1739</sup> Yet Professor Rubinfeld does not investigate any of these relevant factors with respect to his yardsticks. His complete failure to investigate *any* of the factors that affect how much second-entry will reduce incumbent prices in the yardstick market renders Professor Rubinfeld's yardstick analysis "meaningless" according to his own logic and prior academic writings.

### *3. Professor Rubinfeld Uses, and Inconsistently Applies, Unreliable IMS NSP Data*

976. If the data Professor Rubinfeld relies upon is not reliable, neither is his yardstick analysis. Here, Professor Rubinfeld's yardstick analysis relies on "National Sales Perspective" data from the company IMS for the prices in the yardstick markets.<sup>1740</sup> The evidence shows that this IMS NSP data does not accurately track private sector prices, and thus is not a reliable measure of how incumbents change their private prices in response to second-entry.

977. Comparing Menactra's actual private sector prices (based on Sanofi's transaction data) to the IMS NSP price estimates shows that the IMS NSP data is not reliable. Figure 14 below shows that up until July 2010, the IMS NSP price data was not even remotely close to actual Menactra private sector prices. This

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<sup>1737</sup> *Supra* Part VIII.B.2.

<sup>1738</sup> Rubinfeld Report ¶612.

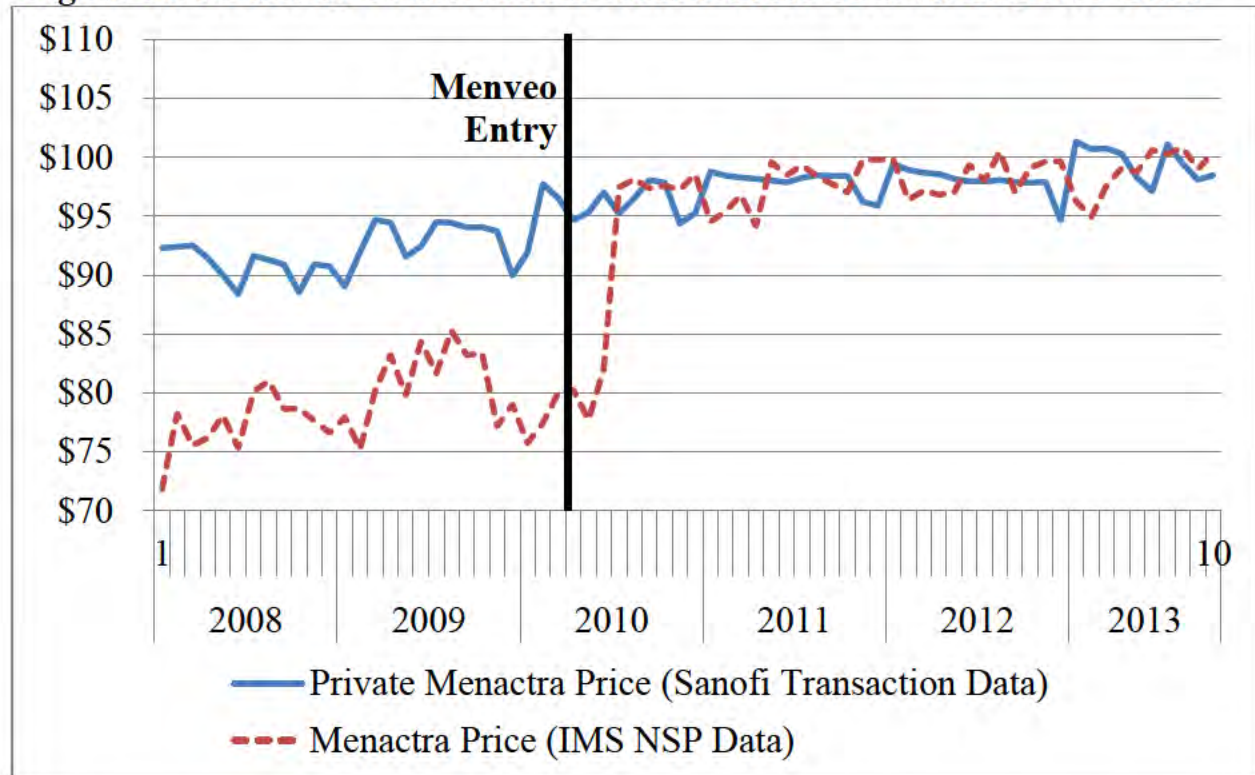
<sup>1739</sup> Elhauge Merits Report Part VII,

<sup>1740</sup> Rubinfeld Report ¶679.



period where the IMS NSP data is grossly inaccurate includes the crucial March 2010 period when Menveo entered the MCV4 market.

**Figure 14: Menactra Prices: Sanofi Transactional Data vs. IMS NSP Data**<sup>1741</sup>



978. Worse yet, Professor Rubinfeld inconsistently applied the IMS NSP data; he used the IMS NSP data to calculate prices in all of his yardstick markets, but used Sanofi transaction data to calculate Menactra’s price. Figure 15 below corrects Professor Rubinfeld’s Exhibit 42-1 so that it consistently uses IMS NSP data not only for the “yardstick” markets, but also for Menactra. It shows that if one consistently uses IMS NSP data, Professor Rubinfeld’s own methodology indicates that Menactra’s price increased in response to second-entry by on average 27% more than Professor Rubinfeld’s “average” vaccine.<sup>1742</sup> In short, if one just corrects his use of inconsistent data, his own average vaccine yardstick indicates that damages here are substantial and enduring. Figure 22 also shows that Menactra’s price increased in response to second-entry by on average 29% more

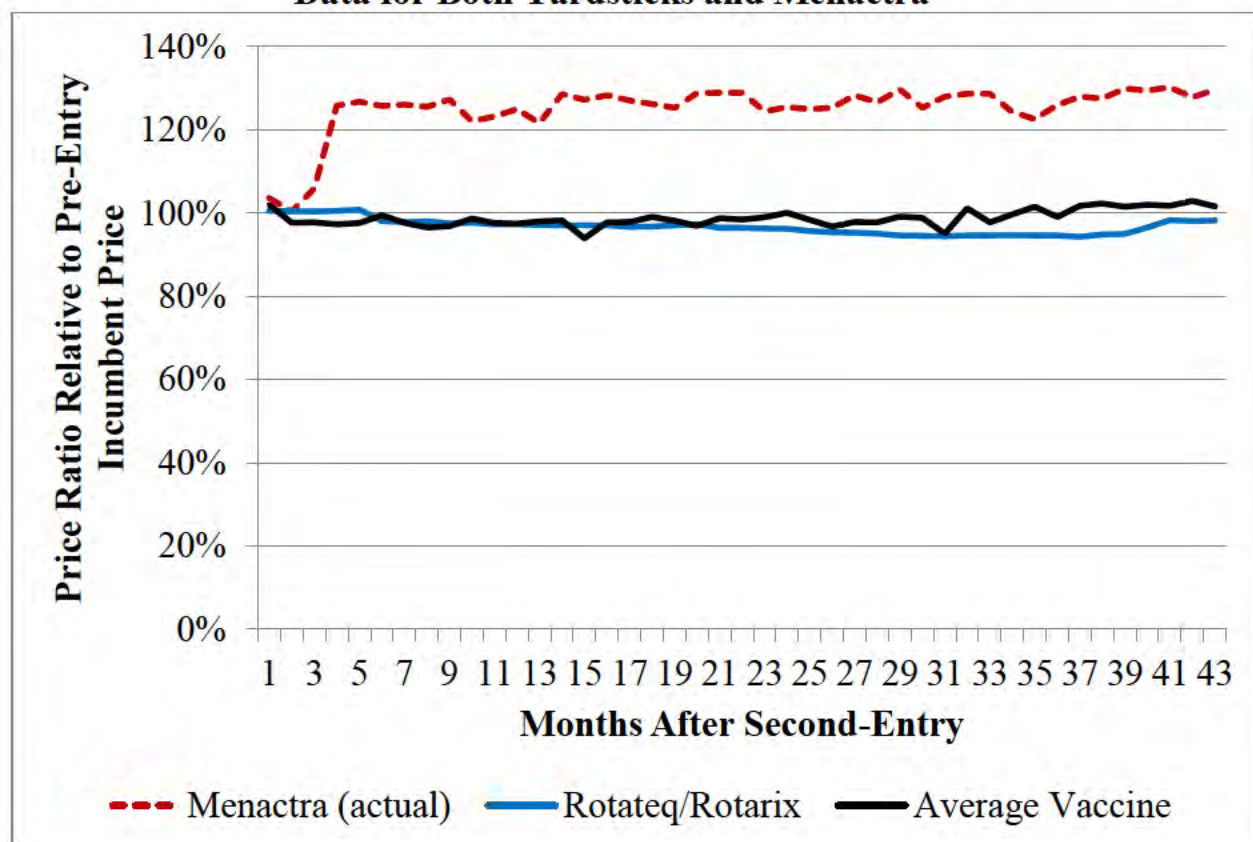
<sup>1741</sup> “MRebut42 mct prices Sanofi tran vs ims nsp.csv”.

<sup>1742</sup> “MRebut42 incumbent indexes with NSP data.csv” (comparing “ratio\_mct\_nsp” column to “index\_average” column).



than the price of the incumbent vaccine in the Rotavirus vaccine market,<sup>1743</sup> which Professor Rubinfeld asserts is the yardstick most similar to the MCV4 market.<sup>1744</sup> In other words, if one just corrects his use of inconsistent data, even his favorite yardstick indicates that damages here are substantial and enduring.

**Figure 15: Rubinfeld Exhibit 42-1, Corrected to Consistently Use IMS NSP Data for Both Yardsticks and Menactra<sup>1745</sup>**



979. Indeed, if one just corrects Professor Rubinfeld’s erroneous use of inconsistent data, Professor Rubinfeld’s collective vaccine yardstick would indicate the average Menactra overcharge was 21% of the actual Menactra price,<sup>1746</sup> and his favorite Rotavirus vaccine yardstick would indicate that the

<sup>1743</sup> “MRebut42 incumbent indexes with NSP data.csv” (comparing “ratio\_mct\_nsp” column to “index\_rotateq” column).

<sup>1744</sup> Rubinfeld Report ¶678.

<sup>1745</sup> “MRebut42 incumbent indexes with NSP data.csv”.

<sup>1746</sup> As noted above, Menactra’s price increased relative to its pre-entry levels by 27% more than the average vaccine incumbent. This indicates that Menactra’s actual price is 27%

Menactra overcharge was 22%.<sup>1747</sup> This is roughly half the overcharge I predict and would still indicate damages for the Menactra overcharge of \$296 million (for his collective vaccine yardstick)<sup>1748</sup> and \$310 million (for his favorite vaccine yardstick) through the end of April 2016.<sup>1749</sup>

980. Professor Rubinfeld does not even attempt to argue that his yardstick method can be applied to entrant prices. The levels of entrant prices relative to incumbent's pre-entry prices are highly varied, with some way above incumbent prices and some below.<sup>1750</sup> The entrant prices thus form no consistent yardstick, which is another problem with his approach. Indeed, this entrant price variation underscores the fact that these markets are too different to form valid yardsticks because the entrants range from superior to highly inferior products.<sup>1751</sup>

981. In sum, Professor Rubinfeld's yardstick analysis is fatally flawed and unreliable for three independent reasons: (a) he has not established his yardsticks are untainted by anticompetitive conduct, (b) he failed to investigate, let alone control for, *any* of the relevant differences between his yardstick markets and the MCV4 market, and (c) he relied upon, and inconsistently applied, unreliable IMS NSP data. Below, I explain these flaws as they specifically apply to each of Professor Rubinfeld's proposed yardsticks.

### ***B. Vaccine Yardsticks***

982. Professor Rubinfeld identifies five vaccine markets that he claims are valid yardsticks for how much Menactra's price would have decreased following Menveo entry in the absence of the Bundle.<sup>1752</sup> As I explain below, none of these vaccine yardsticks is valid because: (1) Professor Rubinfeld fails to establish that they are free from bundling or other anticompetitive conduct, and (2) Professor

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above its but-for price. The overcharge as a percentage of Menactra's actual price is therefore  $27\% / (100\% + 27\%) = 21\%$  using this yardstick.

<sup>1747</sup> As noted above, Menactra's price increased relative to its pre-entry levels by 27% more than the Rotavirus incumbent. This indicates that Menactra's actual price is 27% above its but-for price. The overcharge as a percentage of Menactra's actual price is therefore  $29\% / (100\% + 29\%) = 22\%$  using this yardstick.

<sup>1748</sup> "MRebut55557 Menactra Damages Average Vaccine Yardstick.csv".

<sup>1749</sup> "MRebut55557 Menactra Damages Rotavirus Yardstick.csv".

<sup>1750</sup> See *infra* Part V.B.2.

<sup>1751</sup> See *infra* Part V.B.2.

<sup>1752</sup> Rubinfeld Report ¶¶671-692.

Rubinfeld fails to establish that these vaccine yardsticks are similar to the MCV4 market in *any* of the ways that determine how much second-entry will reduce incumbent prices. Indeed, the evidence affirmatively indicates that Professor Rubinfeld's preferred yardstick, the Rotavirus market, is both tainted by bundling and differs from the MCV4 market in ways that affect how much second-entry will reduce incumbent prices. In sum, Professor Rubinfeld has failed to investigate, much less establish, whether his vaccine yardsticks are valid yardsticks, and the available evidence indicates affirmatively that they are not valid yardsticks.

*1. Professor Rubinfeld Fails to Establish that His Vaccine Yardsticks are Free from Anticompetitive Conduct*

983. Not only has Professor Rubinfeld failed to establish that his vaccine yardsticks are free of anticompetitive conduct, he has affirmatively concluded that: (a) bundling and single-product loyalty contracts are common in the vaccine industry<sup>1753</sup> and (b) bundling and single-product loyalty contracts can be anticompetitive in certain situations.<sup>1754</sup> For four of his five proposed vaccine market yardsticks, Professor Rubinfeld does nothing at all to investigate whether they were subject to anticompetitive conduct: (1) Tdap, (2) "DTaP Combination," (3) HPV, (4) and Mening-B.<sup>1755</sup> For the fifth market, the Rotavirus market, Professor Rubinfeld argues that it was not subject to anticompetitive conduct, but he ignores the evidence showing that it actually was subject to potentially anticompetitive bundling similar to Sanofi's Bundle.

984. **Tdap:** *Boostrix* (GSK, Jun-2005) / *Adacel* (Sanofi, Jul-2005). Professor Rubinfeld does not investigate whether the Tdap market was distorted by anticompetitive conduct at all. The discovery in this case does not extend back to July 2005, so it is not possible for me to determine from the evidence in this case whether the Tdap market was subject to anticompetitive conduct during second-entry.

985. **DTaP Combination:** *Pediarix* (GSK, Jan-2003) / *Pentacel* (Sanofi, Aug-2008). Professor Rubinfeld has not done any investigation into whether the

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<sup>1753</sup> Rubinfeld Report ¶275 ("Almost all major manufacturers in the vaccine industry, including Novartis and GSK, have adopted some form of multi-product loyalty discounts").

<sup>1754</sup> Rubinfeld Report ¶¶445-446 (acknowledging that bundling and loyalty contracts can have anticompetitive effects when they foreclose rivals under certain situations).

<sup>1755</sup> Rubinfeld Report ¶673 (*Boostrix/Adacel*); ¶674 (*Pediarix/Pentacel*); ¶676 (*Gardasil/Cervarix*); ¶677 (*Trumenba/Bexsero*).

competition between Pediarix and Pentacel was distorted by anticompetitive conduct. This failure is especially bad given that Sanofi employees have acknowledged in declarations that Sanofi has been bundling its DTaP, Hib, and Polio containing vaccines since at least 2005,<sup>1756</sup> and Pentacel contains all three of those antigens.

986. **Rotavirus:** *RotaTeq* (Merck, Feb-2006) / *Rotarix* (GSK, Aug-2008). In my opening merits report, I explained that the Rotavirus market could not even potentially be a valid yardstick market for how incumbents respond to second-entry in the absence of anticompetitive conduct because the evidence indicated that the incumbent, Merck, was using potentially anticompetitive conduct in the form of bundled contracts.<sup>1757</sup>

987. Professor Rubinfeld incorrectly asserts that Merck was not actually bundling its rotavirus vaccine when the second-entrant, Rotarix, entered in August 2008. Professor Rubinfeld bases this claim on the premise that a contract Merck signed with the PBG Atlantic Health Partners in July 2007 did not include market share requirements for Merck's rotavirus vaccine.<sup>1758</sup> Professor Rubinfeld omits that Merck amended this contract *specifically in order to add bundled Rotavirus market share requirements in anticipation of second-entry*. A letter sent from Merck to Atlantic Health Partners in May 2008 amended their contract so that it required 80% market share loyalty on Merck's rotavirus vaccine in order to avoid bundled penalty prices on Merck's MMR II, Pneumovax23, Proquad, Varivax, Gardasil, and Zostavax vaccines.<sup>1759</sup>

988. Professor Rubinfeld also incorrectly asserts that the bundled penalty Merck imposed for violating its Rotavirus market share requirement was too small

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<sup>1756</sup> MacDonald October 17, 2012 Declaration ¶5;

<sup>1757</sup> Elhauge Merits Report ¶365.

<sup>1758</sup> Rubinfeld Report ¶689, citing AHP0000001.

<sup>1759</sup> MER030777; *id.* at MER030782. Although the document discovery database in this case does not appear to contain the version of this letter signed by AHP and returned to Merck, another Merck letter dated June 19, 2008 describes itself as the "fifth" amendment to this same Merck-AHP contract (MER027646), indicating that this previous amendment had been accepted. I note also that the copy of the original July 2007 AHP contract that Professor Rubinfeld cites does not include the signature of AHP's representative either. AHP0000001 at AHP0000007. Further establishing that the May 2008 fourth amendment to add a Rotavirus market share requirement was accepted by AHP is that a May 2009 agreement between Merck and AHP also includes a bundled Rotavirus market share requirement, and is signed by both Merck and AHP. MER000001.



to potentially cause anticompetitive harm because it was only 12%.<sup>1760</sup> Professor Rubinfeld's claim that the bundled penalty was only 12% is based on him incorrectly ignoring the substantial bundled penalties a customer would have to pay on Merck's Hepatitis A and Hepatitis B vaccines if the customer violated the Merck Rotavirus market share requirement.<sup>1761</sup> Correcting this error shows that Merck imposed bundled penalties of \$25.91 per rotavirus dose, which represented 40% of Merck's nominal loyal RotaTeq price (\$64.71), and reduced Merck's incremental RotaTeq price to \$38.79.<sup>1762</sup> The significant size of that bundled disloyalty penalty makes it inappropriate for Professor Rubinfeld to completely dismiss the possibility that these bundled penalties could be anticompetitively distorting Rotavirus market prices.

989. Professor Rubinfeld also asserts incorrectly that it is impossible for Merck's bundled penalties to cause anticompetitive harm because its Rotavirus competitor, GSK, has a large vaccine portfolio.<sup>1763</sup> This just repeats Professor Rubinfeld's earlier incorrect claims that it is impossible for bundling to cause anticompetitive harm when the bundler faces a rival that also bundles.<sup>1764</sup> To the contrary, I have explained elsewhere in this report that bundling can

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<sup>1760</sup> Rubinfeld Report ¶690. .

<sup>1761</sup> Professor Rubinfeld's backup, "Paragraph 690.xlsx", shows that he assumes this hypothetical customer would switch from Merck Hepatitis A and Hepatitis B vaccines to GSK Hepatitis A and Hepatitis B vaccines. This is inappropriate not only because customers with preferences for Merck Hepatitis A and B vaccines will not necessarily switch to GSK versions, but also because forcing a customer to switch to less preferred hepatitis vaccines are themselves bundled penalties. Nor does the possibility of such switching to a less-preferred tying product distinguish the bundle there in the Rotavirus market from the Bundle here in the MCV4 market. To the contrary, he and Sanofi make precisely the same incorrect argument here that the bundled penalties should be ignored because customers could avoid paying higher Sanofi pediatric prices by switching to less-preferred GSK pediatrics. *See supra* Part II.A.4. Given that the issue here are the damages if liability has been found, that argument cannot apply here. In any event, it means that the Rotavirus market cannot be a valid yardstick because has the same sort of bundled loyalty penalties that exist here.

<sup>1762</sup> "MRebut Rubinfeld Paragraph 690 (Corrected).xlsx". Even if (contrary to fact) Professor Rubinfeld were right that the bundled penalty on Rotavirus is only 12%, his claim here that a 12% bundled penalty cannot have anticompetitive effects conflicts with his claim elsewhere in his report that a 4% bundled penalty on Menaetra would have sufficed to divide the MCV4 market without any bundled penalties on pediatrics. *See supra* Part V.A.2..

<sup>1763</sup> Rubinfeld Report ¶690.

<sup>1764</sup> *See supra* Part VI.C.



anticompetitively inflate prices by dividing the market even when the rival can also produce all products in the bundle.<sup>1765</sup>

990. In sum, given that the incumbent in the Rotavirus market introduced large bundled penalties for customers that switched to the rival Rotavirus vaccine specifically in anticipation of second-entry, the Rotavirus market would not be a valid yardstick unless one analyzed the market and determined that the significant bundled penalties in it did not cause anticompetitive effects. Such an analysis is impossible due to the lack of discovery on the Rotavirus market in this case. For example, in determining whether Sanofi's Bundle is anticompetitive, Professor Rubinfeld and I have both relied upon: (1) the transactional data of the firms in the MCV4 market, (2) cost data from the firms in the MCV4 market (3) a full set of contracts in the MCV4 market, (4) hundreds of internal strategic documents from the firms in the MCV4 market, and (5) dozens of depositions about the MCV4 market. In contrast, in the Rotavirus market: we have (1) no transactional data, (2) no cost data, (3) only a small sampling of contracts, (4) only a small sampling of internal Merck documents, and (5) no depositions from Merck employees. Professor's Rubinfeld's conclusion that Merck's Rotavirus bundle is not anticompetitive is patently unreliable because it is based on one misinformed paragraph and none of the necessary investigation.<sup>1766</sup>

991. **HPV:** *Gardasil* (Merck, Jun-2006) / *Cervarix* (GSK, Dec-2009). Professor Rubinfeld has likewise done no investigation into whether the HPV market is potentially distorted by anticompetitive conduct. Although discovery on Merck's contracts is limited, available Merck contracts indicate that Merck introduced an 80% HPV "Merck Market Share Requirement" for PBGs in anticipation of Cervarix's entry.<sup>1767</sup> Cervarix ultimately achieved a miniscule 1-3% share of the HPV market.<sup>1768</sup> This trivial entrant market share indicates either that Merck's contractual restraints were effective in preventing Cervarix from

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<sup>1765</sup> *Supra* Part VI.C.

<sup>1766</sup> Rubinfeld Report ¶690.

<sup>1767</sup> MER000018 at MER000019 (October 21, 2009 letter sent from Merck to the PBG Atlantic Health Partners amending their agreement titled "Gardasil Market Share Requirement Introduction." It states "the purpose of this Amendment . . . is to introduce a quarterly Merck Market Share Requirement and Administrative fees for Gardasil."); *Id.* at MER000021 (schedule E of contract showing "Therapeutic Categories and Market Share Requirements." Under "HPV containing vaccine" it lists "Gardasil" and "Cervarix" and states that the "Merck Market Share Requirement" is "≥80%").

<sup>1768</sup> Elhauge Merits Report ¶367; Rubinfeld Exhibit 41.

stealing a significant portion of Gardasil's market share or (as discussed in the next section) that Cervarix's undisputed product inferiority meant it never presented a significant competitive threat to Merck's Gardasil,<sup>1769</sup> or perhaps a combination of the two.

992. ***Mening-B: Trumenba*** (Pfizer, Dec-2014) / ***Bexsero*** (GSK, Feb-2015). Professor Rubinfeld did no investigation into whether anticompetitive conduct was distorting the market for Mening-B vaccines either. Fact discovery in this case ended on March 10, 2014,<sup>1770</sup> about a year before the second-entrant Bexsero entered. This makes it impossible for Professor Rubinfeld to establish (as he must) that the Mening-B market was not tainted by anticompetitive conduct.

*2. Professor Rubinfeld Fails to Control for Any Relevant Differences Between His Yardstick Vaccine Markets and the MCV4 Market.*

993. Professor Rubinfeld included any vaccine market where the second entrant launched after January 2000.<sup>1771</sup> He has not investigated whether these five other vaccine markets differ from the MCV4 market in *any* of the following characteristics that affect how much second entry reduces prices: (1) market demand elasticity; (2) the average preference for the incumbent product; (3) the level and nature of differentiated demand; (4) cross-elasticity of demand; (5) cost changes during entry; (6) demand changes during entry; (7) degree of coordination, (8) whether competition is on price or quantity, and (9) the presence of anticompetitive conduct. This complete failure to investigate any of these factors, let alone control for them, renders all of his vaccine yardsticks "meaningless" according to his own statements elsewhere in his report and his own prior academic writings.

994. **a. Rotavirus Market.** Out of all of his vaccine yardsticks, Professor Rubinfeld asserts that the Rotavirus market to be "most similar" to the MCV4 market.<sup>1772</sup> Professor Rubinfeld's most glaring failure here is to ignore the key similarity between the Rotavirus market and the MCV4 market that makes the Rotavirus market an *invalid* yardstick: the incumbent in the Rotavirus market, like Sanofi in the MCV4 market, imposed large bundled penalties on customers who

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<sup>1769</sup> See *infra* Part X.B.2. (noting that Cervarix was far inferior to Gardasil for reasons that Professor Rubinfeld does not dispute).

<sup>1770</sup> Third Amended Scheduling Order, ECF 280 (Jan. 24, 2014).

<sup>1771</sup> Rubinfeld Report ¶672.

<sup>1772</sup> Rubinfeld Report ¶678.

bought from the second-entrant.<sup>1773</sup> The Rotavirus market thus cannot serve as a yardstick of what happens when the incumbent does *not* impose large bundled penalties.

995. Even if (contrary to fact) the Rotavirus market was not also subject to bundling, it would still be an invalid yardstick because Professor Rubinfeld has not established that the Rotavirus market is similar to the MCV4 market in *any* of the relevant ways. The only type of similarities or differences between the Rotavirus market and the MCV4 market that are relevant for this analysis are factors that affect how much second-entry will reduce incumbent prices. Professor Rubinfeld lists four supposed “similarities” between the Rotavirus market and the MCV4 market,<sup>1774</sup> but three of them have no bearing on how much second-entry will reduce incumbent prices. One supposed “similarity” is that the RotaTeq and Rotarix were “both indicated for the ages at which ACIP recommended routine vaccination,”<sup>1775</sup> but those products could not possibly be in the same market if they were not recommended for the same use, so that does not indicate that the Rotavirus market is more “similar” to the MCV4 market than any other market. Two of his other supposed “similarities” are that the incumbent RotaTeq entered 1 year after Menactra and the rival Rotarix entered 1.5 before Menveo.<sup>1776</sup> But that actually shows a relevant *difference* between the Rotavirus market and the MCV4 market: the rival entered only 2.5 years after the incumbent in the Rotavirus market, compared to 5 years after the incumbent in the MCV4 market. Ultimately, this supposed “similarity” boils down to entry to the Rotavirus market occurring in the same decade as entry to the MCV4 market. The fact that two products entered the market in the same decade does not assure one that those two products are similar in any of the eight ways that affect how much second-entry reduces incumbent prices.

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<sup>1773</sup> *Supra* Part B.1.

<sup>1774</sup> Rubinfeld Report ¶678. Professor Rubinfeld lists the following “similarities” he claims exist between the MCV4 market and the Rotavirus market: (1) “the incumbent had a slightly broader age indication, [but] both were indicated for the ages at which ACIP recommended routine vaccination”; (2) “[the rival] Rotarix entered not long before Menveo (August 2008 vs. March 2010)”; (3) “the incumbent RotaTeq had entered in February 2006, roughly a year after Menactra”; and (4) “Rotarix had modest success, but still lagged the incumbent in sales, achieving a 24% share of rotavirus vaccine sales two years after entry, similar to Menveo’s 20% of MCV4 vaccine sales.”

<sup>1775</sup> *Id.* Similarity (1)

<sup>1776</sup> *Id.* Similarities (2) and (3).

996. The only supposed “similarity” between the Rotavirus market and the MCV4 market that is even remotely related to the effect of second-entry on incumbent prices is the rival’s market share.<sup>1777</sup> Professor Rubinfeld notes that the Rotavirus market’s second entrant’s market share (24%) was similar to Menveo’s (20%).<sup>1778</sup> The similarity of the second-entrant’s market shares bears at most on only *two* of the eight factors that determine how much second-entry affects the incumbent’s prices: average preference for the incumbent product and the cross-elasticity of demand between the competitors’ products. Further, Professor Rubinfeld ignores that similar market shares do not indicate similar average preferences for the incumbent or cross-elasticities if the ratio of the second-entrant price to the incumbent price differs between the two markets. Here, Professor Rubinfeld’s own backup data indicates that Menveo entered at 12% discount relative to Menactra, whereas the Rotavirus second-entrant entered at a 1% price *premium* relative to the Rotavirus incumbent.<sup>1779</sup> The fact that the Rotavirus second-entrant achieved a higher market share than Menveo even though the Rotavirus second-entrant was price *significantly* higher than Menveo (relative to the incumbent) affirmatively indicates that the MCV4 market is significantly *different* from the Rotavirus market in terms of average preference of the incumbent and the cross-elasticity of demand. Thus, comparing second-entrant prices and market shares actually provides *further* evidence that the Rotavirus market is not a valid yardstick.

997. Professor Rubinfeld’s last remaining basis for the Rotavirus market being a valid yardstick is that a Novartis presentation included the Rotavirus market in a chart purporting to demonstrate that “2<sup>nd</sup> to market vaccines lower price growth over time.”<sup>1780</sup> This fails to show that the Rotavirus market is a valid yardstick for multiple reasons. First, this does not refute the fact that the Rotavirus market is an invalid yardstick because the Rotavirus market was itself subject to large bundled penalties. Second, this does not refute the fact that the Rotavirus market is an invalid yardstick because its cross-elasticity of demand is significantly different from the MCV4 market’s cross-elasticity of demand. Third, Professor Rubinfeld’s claim assumes both that: (1) in this business document, Novartis was trying to find a valid yardstick for MCV4 prices *without* the Bundle; and (2)

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<sup>1777</sup> *Id.* Similarity (4).

<sup>1778</sup> Rubinfeld Report ¶678.

<sup>1779</sup> “MRebut41 ratio of second entrant to incumbent prices, rubin backup.csv”. This data also shows that the average ratio of second-entry to incumbent price was 1.15 times higher for the Rotavirus market than for the MCV4 market.

<sup>1780</sup> Rubinfeld Report ¶678, citing [REDACTED]

Novartis had the economic expertise and information necessary to determine when a yardstick was valid. But neither of those assumptions appears to be true here. There is no indication that this Novartis presentation is meant to be limited to markets without bundling (or other anticompetitive conduct). Indeed, this presentation's inclusion of the MCV4 and Rotavirus markets, both of which are known to be subject to bundling, affirmatively indicates that Novartis was not trying to limit this presentation to markets untainted by bundling. This makes sense because this is a business document trying to project the likely business outcome of entry into bundled vaccine markets. When making business decisions, it would be bad business to make decisions based on an assumption that entrants will not face bundling when in fact they will. Further, this Novartis presentation affirmatively indicates that the Novartis employees who created the document lacked the necessary economic expertise and/or information to identify valid yardsticks because it makes numerous errors, including: (a) relying on a pseudo-scientific "price trajectory" theory that contradicts basic economic theory;<sup>1781</sup> (b) including markets, like the Rotavirus market, that differs significantly from the MCV4 market in terms of the average preference for the incumbent and the cross-elasticity of demand;<sup>1782</sup> and (c) including markets, like the HPV market, which the evidence indicates is not a valid yardstick because the second-entrant was far inferior to the incumbent (a point which Professor Rubinfeld does not dispute).<sup>1783</sup>

998. In sum, Professor Rubinfeld has not identified a *single* characteristic about the Rotavirus market that indicates that it is even possibly a valid yardstick for the MCV4 market. In contrast, I have shown that the Rotavirus market is an invalid yardstick not only because it was tainted by large bundled penalties, but also because the evidence affirmatively indicates that the Rotavirus market differs significantly from the MCV4 market in terms of the average preference for the incumbent and the cross-elasticity demand. Thus, the Rotavirus market would be an invalid benchmark even if it was not tainted by anticompetitive conduct. Moreover, because of the limited discovery in this case there is no evidence indicating whether the Rotavirus market differs from the MCV4 market in terms of

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<sup>1781</sup> [REDACTED]

[REDACTED] It is thus based on the premise that prices "grow" as if they have momentum until something stops or slows that momentum. I have shown above in Part VII.A that this "price trajectory" analysis is pseudoscience that is contrary to basic economic theory.

<sup>1782</sup> [REDACTED]

<sup>1783</sup> [REDACTED]



any of the following relevant factors: (1) market demand elasticity, (2) the level and nature of demand differentiation, (3) cost changes during entry, (5) demand changes during entry, (6) degree of coordination, and (6) whether the firms compete on price or quantity.

999. **b. Professor Rubinfeld's Other Four Proposed Vaccine Yardsticks.** Professor Rubinfeld's assertion that the Rotavirus market is the "most similar" of his vaccine yardsticks to the MCV4 markets implicitly admits that all of his other vaccine yardsticks are even *less* similar to the MCV4 market.<sup>1784</sup> Given that the Rotavirus market is not similar enough to the MCV4 market to be a valid yardstick (without controlling for any differences), that necessarily means that Professor Rubinfeld's remaining vaccine yardsticks are also invalid according to his own reasoning.

1000. Further Professor Rubinfeld failed to conduct *any* investigation into whether these other four vaccine yardsticks were even *remotely* similar to the MCV4 market in any of the ways that affect how much second-entry will reduce incumbent prices. This alone makes all of these yardsticks invalid. Given the lack of discovery on these other yardsticks, it is impossible to show that they are even remotely similar to the MCV4 market in the ways that affect how much second-entry will reduce incumbent prices. Nonetheless, I show below that what little evidence is available affirmatively indicates that all four of these other vaccine markets differ from the MCV4 market in a way that makes them invalid yardsticks.

1001. ***Tdap***: *Boostrix* (GSK, Jun-2005) / *Adacel* (Sanofi, Jul-2005). Professor Rubinfeld's own backup data shows that the Tdap market is significantly different from the MCV4 market in ways that affect how much second-entry would reduce incumbent prices. Whereas Menveo entered at a 12% discount to Menactra and achieved only a 20% market share in the MCV4 market, the second-entrant in the Tdap market entered at a 38% *premium* relative to the incumbent yet achieved a 62% share of the Tdap market.<sup>1785</sup> This indicates that the Tdap market differs from the MCV4 market in terms of the average preference for the incumbent

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<sup>1784</sup> Rubinfeld Report ¶678.

<sup>1785</sup> Market shares come from Rubinfeld Exhibit 41. Ratios of entrant prices to incumbent prices come from "MRebut41 entrant to incumbent price ratios all vacc yardsticks.csv." Professor Rubinfeld's Exhibit 41 lists the second-entrants market share in the "24<sup>th</sup> month post entry." During the first 24 months following second-entry, the Tdap entrant's price was on average 109% of the incumbent's price, while the MCV4 entrant's price was on average 90% of the incumbent's price. "MRebut41 entrant ratios to incumbents first 24 months since entry.csv".

vaccine and the cross-elasticity of demand, and perhaps in the level and nature of demand differentiation, and thus that the Tdap market is not a valid yardstick for the MCV4 market.

1002. **DTaP Combination:** *Pediarix* (GSK, Jan-2003) / *Pentacel* Sanofi, Aug-2008). Professor Rubinfeld's proposed "DTaP combination market" also differs from the MCV4 market in ways that affect how much second entry reduces incumbent prices.

1003. *First*, the two vaccines he includes in this proposed "DTaP Combination" market do not even inoculate against the same antigens; both inoculate against DTaP and Polio, but only *Pediarix* inoculates against Hepatitis B and only *Pentacel* inoculates against Hib.<sup>1786</sup> In contrast, in the MCV4 market *Menactra* and *Menveo* both inoculate against the same four strains of meningococcal disease.<sup>1787</sup> The fact that *Pediarix* and *Pentacel* do not inoculate against the same antigens means they are not as close of substitutes to each other as *Menactra* and *Menveo* are to each other, which in turns means that the level and nature of demand differentiation will be higher, and the cross-elasticity of demand in the proposed "DTaP combination" market will significantly lower, than in the MCV4 market. A second entrant will reduce incumbent prices less the more differentiated the demand and the lower the cross-elasticity of demand, so these important differences mean that entry in the proposed "DTaP combination" market should predictably have a smaller price effect than entry into the MCV4 market, even if one assumed (contrary to fact) that everything else about these markets was the same.

1004. *Second*, Professor Rubinfeld's exhibits and backup also indicate that the proposed "DTaP combination" market differs from the MCV4 market in terms of the average preference for the incumbent and the cross-elasticity of demand. According to Professor Rubinfeld's own Exhibit 41, the second-entrant in his "DTaP combination" market achieved a 70% market share, whereas *Menveo* achieved only a 20% market share. Further, the "DTaP combination" second entrant had a significantly higher market share while also charging essentially the same price (within 1%) of the incumbent, whereas *Menveo* was priced 10% less than *Menactra* according to Professor Rubinfeld's backup.<sup>1788</sup> This indicates that

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<sup>1786</sup> Rubinfeld Report ¶674.

<sup>1787</sup> Elhauge Merits Report ¶34.

<sup>1788</sup> "MRebut41 entrant ratios to incumbents first 24 months since entry.csv".

Professor Rubinfeld's proposed "DTaP combination" market differs significantly from the MCV4 market in terms of the average preference for the incumbent and the cross-elasticity of demand. This is yet another reason that the proposed "DTaP combination" market is an invalid yardstick for the MCV4 market.

1005. **HPV:** *Gardasil* (Merck, Jun-2006) / *Cervarix* (GSK, Dec-2009). I already explained in my opening merits report that the HPV market is not a valid yardstick for the MCV4 market because the second-entrant in the HPV market was far inferior to the incumbent, whereas Menveo was similar in quality to Menactra.<sup>1789</sup> Cervarix was far inferior to Gardasil because Cervarix inoculated against only two of the four strains of HPV that Gardasil covered, and thus Cervarix unsurprisingly was unable to gain more than a 1-3% market share.<sup>1790</sup> In contrast, in the MCV4 market Menactra and Menveo both inoculate against the same four strains of meningitis, and Menveo was able to get a significant market share despite being powerfully restrained by the Bundle.<sup>1791</sup>

1006. Professor Rubinfeld does not dispute that Cervarix is inferior or that the HPV market is not a valid yardstick for this reason.<sup>1792</sup> He instead argues that it does not matter because the results of his other vaccine yardsticks are similar, which he argues means they confirm each other.<sup>1793</sup> But those vaccine yardsticks are flawed for other reasons I detail throughout this section. Nor is it confirming that in his other yardsticks, where entry by vaccines that were often clearly superior and never as clearly inferior as Cervarix, his results were similar to the effects of clearly inferior entry into the HPV market. To the contrary, that similarity affirmatively suggests that there must be factors other than entrant inferiority that are dampening entry price effects in those other yardsticks because one would otherwise expect superior entry to produce different price effects from clearly inferior entry.

1007. **Mening-B:** *Trumenba* (Pfizer, Dec-2014) / *Bexsero* (GSK, Feb-2015). There is no discovery on the Mening-B market in this case because the first entrant (*Trumenba*) entered after the discovery deadline in this case.

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<sup>1789</sup> Elhauge Merits Report ¶367.

<sup>1790</sup> Elhauge Merits Report ¶367.

<sup>1791</sup> Elhauge Merits Report ¶367.

<sup>1792</sup> Rubinfeld Report ¶691 & n.861.

<sup>1793</sup> Rubinfeld Report ¶691.

1008. Nonetheless, Professor Rubinfeld's own backup shows significant relevant differences between the MCV4 market and the Mening-B market. The second-entrant in the Mening-B market achieved a significantly higher market share (51%) than Menveo did (20%) even though the Mening-B second entrant and Menveo were both priced approximately 10% less than the respective incumbents.<sup>1794</sup> Thus, the preference for the incumbent was not only different in the Mening-B market, but flipped: customers on average preferred the second-entrant. These very different second-entrant market shares despite similar second-entrant prices (relative to the incumbent) indicates that the cross-elasticity of demand differs between the MCV4 market and the Mening-B market. This is yet another reason that Professor Rubinfeld's "Mening-B" market is not a valid yardstick for the MCV4 market.

1009. Moreover, for *all* of Professor Rubinfeld's non-Rotavirus vaccine yardsticks, there is no evidence indicating whether these yardsticks differ from the MCV4 market in any of the following relevant ways: (1) market demand elasticity, (2) cost changes during entry, (3) demand changes during entry, (4) degree of coordination, and (5) whether the firms compete on price or quantity.

*3. Consistent Use of IMS NSP Data Indicates that Menactra Prices Were Inflated Relative to the Average Incumbent Vaccine Following Second-Entry*

1010. As discussed above in Section A.1, comparing Menactra's price according to Sanofi's transaction data to its price according to the IMS NSP data shows that the IMS NSP price data is unreliable. Further, Section A.1 above showed that Professor Rubinfeld inconsistently applied the IMS NSP data, opting to use it only for his yardstick markets but not for Menactra. Consistently using the IMS NSP data for not only the yardsticks, but also Menactra would indicate that Menactra's price following Menveo entry was significantly inflated relative to the average vaccine following second entry, as Figure 15 above showed. In other words, even if one (incorrectly) believed Professor Rubinfeld's vaccine yardsticks were valid, using that price data consistently would mean his yardsticks would still show a substantial overcharge, contrary to his claim that his vaccine yardsticks show the overcharge was small or nonexistent.<sup>1795</sup>

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<sup>1794</sup> Market shares from Rubinfeld Exhibit 41. Average price ratios from "MRbut41 entrant ratios to incumbents first 24 months since entry.csv".

<sup>1795</sup> Rubinfeld Report ¶¶685-86 (claiming that his vaccine yardsticks show overcharges were small or negative).

\* \* \*

1011. In sum, Professor Rubinfeld's proposed vaccine yardsticks are invalid for five independently sufficient reasons: (1) Professor Rubinfeld does not establish that they are free from bundling, even though he admits elsewhere that bundling is endemic to the vaccine industry; (2) the evidence affirmatively indicates that some of them (such as the Rotavirus market) are in fact subject to bundling; (3) Professor Rubinfeld fails to even *investigate* whether any of these vaccine yardsticks differ from the MCV4 market in a way that would affect how much second-entry would impact incumbent prices; (4) even with the limited discovery available, the evidence affirmatively indicates that all five of his vaccine yardsticks differ in ways that affect how much second-entry should reduce incumbent prices; (5) his yardstick method relies upon unreliable IMS NSP data that, when applied consistently, actually indicates that Menactra's price was significantly inflated according to Professor Rubinfeld's own methodology.

### ***C. Biologic Yardsticks***

#### *1. Professor Rubinfeld Fails to Establish that His Yardstick Biologic Markets are Free From Anticompetitive Conduct*

1012. All of Professor Rubinfeld's biologic product yardsticks are invalid because he has not established that any of them are free from anticompetitive conduct.<sup>1796</sup> This failure renders all of these biologic yardsticks meaningless. Given that there is no fact discovery in this case on these products, it is not possible to determine whether their prices were distorted by anticompetitive conduct. Nonetheless, Professor Rubinfeld's selection criteria—that the market be limited to two competitors—itsself ensures that all of these markets have firms with the market power to engage in anticompetitive conduct.<sup>1797</sup> Without investigation showing that they did not engage in anticompetitive conduct, none of them can be valid yardsticks.

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<sup>1796</sup> Rubinfeld Report ¶¶695-699.

<sup>1797</sup> See *supra* note 1727.



*2. Professor Rubinfeld Fails to Control for Any Relevant Differences Between His Yardstick Biologic Markets and the MCV4 Market*

1013. As with his vaccine yardsticks, Professor Rubinfeld failed investigate whether his biologic yardsticks differ from the MCV4 market in *any* of nine characteristics that affect how much second entry reduces incumbent prices. Indeed, Professor Rubinfeld did not even attempt to show that any of his proposed biologic yardsticks were “similar” to the MCV4 market in any relevant way. To the contrary, none of these biologics is even a vaccine, but rather all are used to treat various diseases (not inoculate against them).<sup>1798</sup> There is no reason to think that the demand and cost conditions for such treatment biologics has anything to do with the demand and cost conditions for the MCV4 vaccine. Given that there is no discovery any of these markets, it is impossible to show that, despite this fundamental difference, these unrelated biologics are similar enough to the MCV4 market to serve as valid yardsticks. This makes all five of his proposed biologic yardsticks invalid.

*3. Consistent Use of IMS NSP Data Indicates Menactra Price Inflated Relative to Average Biologic Second-Entrant*

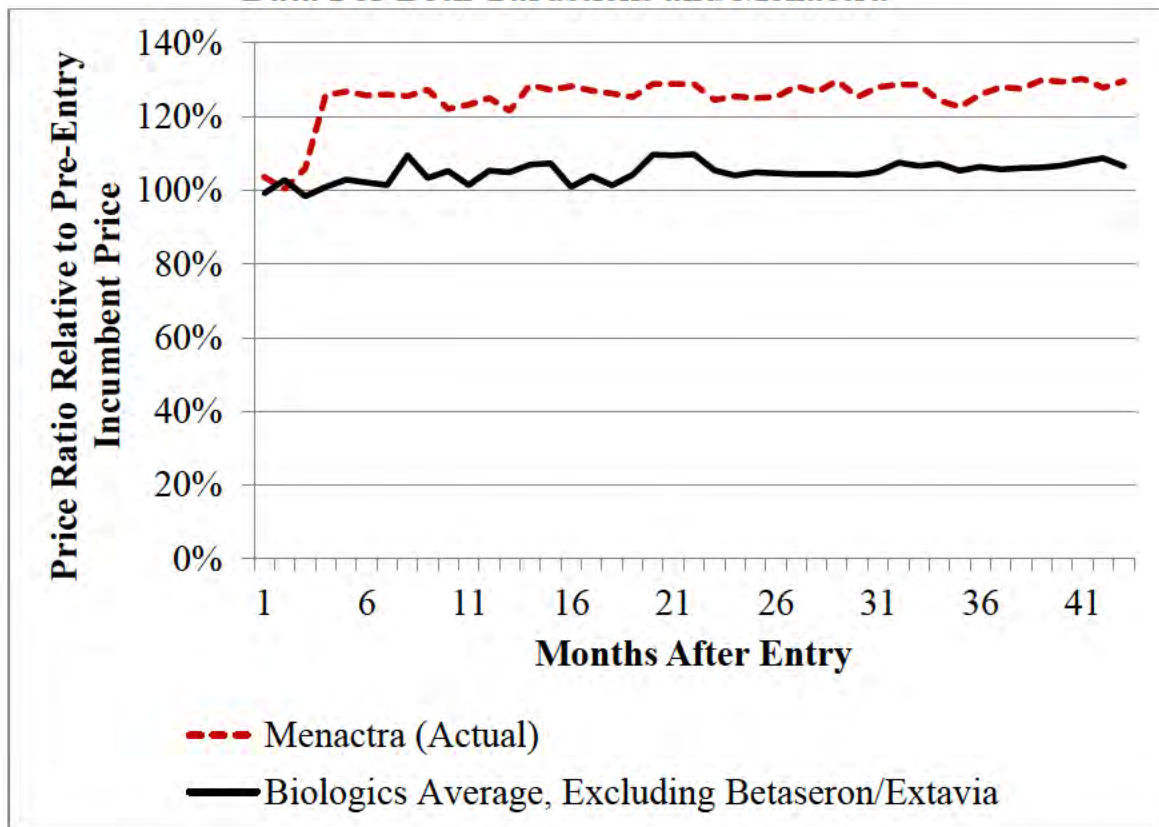
1014. Figure 16 below shows that, if one consistently uses IMS NSP data not only for Professor Rubinfeld’s biologic yardsticks, but also for Menactra, then Professor Rubinfeld’s own methodology indicates that Menactra’s price was significantly inflated after Menveo entry relative to the average biologic incumbent. In other words, even if one (incorrectly) believed Professor Rubinfeld’s biologic yardsticks were valid, using that price data consistently would mean his yardsticks would still show a substantial overcharge (and significant damages), contrary to his claim that his biologic yardsticks show that any overcharge was small or negative.<sup>1799</sup>

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<sup>1798</sup> Rubinfeld Report ¶¶695-699.

<sup>1799</sup> Rubinfeld Report ¶704-05 (claiming that his biologic yardsticks show overcharges are small or negative).

**Figure 16: Rubinfeld Exhibit 46-1, Corrected to Consistently Use IMS NSP Data For Both Yardsticks and Menactra<sup>1800</sup>**



1015. Indeed, if one just corrects Professor Rubinfeld’s erroneous use of inconsistent data, Professor Rubinfeld’s biologics yardstick would indicate the average Menactra overcharge was 16% of the actual Menactra price.<sup>1801</sup> This is about 40% of the overcharge I predict and would still indicate damages for the Menactra overcharge of \$225 million.<sup>1802</sup>

<sup>1800</sup> “MRebut42 incumbent biologic indexes with NSP data.csv”.

<sup>1801</sup> If one consistently uses IMS NSP data, then Menactra’s price increased following second-entry by 19% more than the average biologic. “MRebut42 incumbent biologic indexes with NSP data.csv” (compare “ratio\_mct\_nsp” column to “index\_average\_exc\_betaseron” column). This indicates that Menactra’s price was 19% above but-for levels, and consequently that the overcharge as a percentage of Menactra’s actual price was  $19\% / (100\% + 19\%) = 16\%$ .

<sup>1802</sup> See “MRebut55557 Menactra Damages Biologic Yardstick.csv”.

## XI. AGGREGATE CLASS DAMAGES

1016. In addition to incorrectly claiming I should measure damages using his yardsticks (and ignoring the fact that using consistent data would lead to substantial damages even if one does use his yardsticks), Professor Rubinfeld offers three critiques of how I estimated aggregate class member Menactra and Menveo purchases and aggregate class member overcharges. Each of these additional critiques relates to estimating damages in the period after the last month for which we have data (October 2013 for Menactra and August 2013 for Menveo). In my opening merits report, I explained that “I have been instructed by counsel to calculate damages for the period from November 2013 to the present on the reasonable assumption that the average monthly rate of damages for the period for which data was produced (April 2010-Oct 2013) [for Menactra and April 2010-August 2013 for Menveo] would continue to hold for the following months.”<sup>1803</sup> This approach is reasonable because the annual amount of overcharge was quite stable over time. For example, the 2011 total overcharge was \$121.7 million, while the 2012 total overcharge was \$121.0 million.<sup>1804</sup> None of Professor Rubinfeld’s critiques of this method are valid.

1017. **a. My Methodology Does Limit Menveo Damages to Class Members.** Professor Rubinfeld incorrectly claims that that after August 2013 my methodology for calculating Menveo purchases by class members does not limit Menveo damages to class members.<sup>1805</sup> This claim appears to be based on an incorrect understanding of how I calculated aggregate Menveo class member purchases. My backup code shows that the aggregate Menveo class member purchases are specifically limited to private customers who bought Menactra since March 24, 2010. I did so by first identifying the private customers who purchased Menactra after March 24, 2010, and then summing all of those particular customers’ purchases of Menveo that are recorded in the IMS DDD database.<sup>1806</sup> This ensures that my Menveo damages are limited to customers who purchased Menactra since Menveo entry and thus are members of the class.

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<sup>1803</sup> Elhauge Merits Report ¶¶393-394.

<sup>1804</sup> Elhauge Merits Report Tables 32 & 33.

<sup>1805</sup> Rubinfeld Report ¶718.

<sup>1806</sup> See “Merits8000 Menactra Class Member Purchases.do”. Sanofi’s transaction data, which identifies class members, and the IMS DDD data, which identifies Menveo doses per each customer, can be combined using the Sanofi customer number variable that is present in both databases.

1018. **b. Monthly Damages Rates Controlling for Seasonality.** Professor Rubinfeld argues that estimating post-2013 damages by using the average monthly damages rate for the period from April 2010 to October 2013 (for Menactra) or August 2013 (for Menveo) biases post-2013 damages upward because it fails to account for seasonality in MCV4 purchases.<sup>1807</sup> However, one can easily account for seasonality by calculating the average monthly rate of damages using the last 36 months before the end of the data, which makes sure that each calendar month is represented equally. For Menactra, the 36-month approach results in average monthly damages of \$7,519,719, very similar to the \$7,704,033 I calculated in my opening merits report.<sup>1808</sup> For Menveo, the 36-month approach results in average monthly damages of \$1,992,618, very similar (and a bit larger) than the \$1,842,954 I calculated in my opening merits report.<sup>1809</sup> The fact that the monthly averages go in opposite directions contradicts Professor Rubinfeld's assertion that failing to use a range of months that takes into account seasonality necessarily biases demand upward. Further, the total monthly damages using the 36-month approach is \$9,512,337, which is barely (only 0.36%) lower than the \$9,546,987 I calculated in my original merits report.

1019. Table 19 below shows classwide overcharges on Menactra using the 36-month approach and updates the figures through April 2016. Table 20 below shows classwide overcharges on Menveo using the 36-month approach and updates the figures through April 2016. With this update, the total overcharge damages suffered by the Class is \$556,864,970 on Menactra, \$139,324,897 on Menveo, and \$696,189,867 on the combination of both. Each number is higher than in my original merits report because the increase from extending damages through April 2016 swamps the trivial decrease from using a 36-month approach that eliminates seasonal effects.

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<sup>1807</sup> Rubinfeld Report ¶719.

<sup>1808</sup> "MRebut55555 seasonal Menactra damages rate assumption 1.csv"; Elhauge Merits report n. 605. For Menactra, the 36 month approach uses damages from November 2010 to October 2013 since those are the 36 months that precede the end of Menactra data.

<sup>1809</sup> "MRebut55555 seasonal menveo damages rate assumption 1.csv"; Elhauge merits Report n. 608. For Menveo, the 36 month approach uses damages from from September 2010 to August 2013 since those are the 36 months that precede the end of Menveo data.



<b>Table 19: Classwide Overcharge Damages on Menactra (Using Projected Damages Rates That Control for Seasonality)<sup>1810</sup></b>			
<b>Year</b>	<b>Average Overcharge on Menactra</b>	<b>Class Member Menactra \$ Purchases</b>	<b>Overcharge Damages on Menactra</b>
2010 (3/24-onward)	38%	\$167,325,309	\$64,193,912
2011	43%	\$230,263,926	\$98,763,304
2012	39%	\$234,497,007	\$91,564,048
2013 (1/1 - 10/31)	38%	\$200,096,130	\$76,752,144
2013 (11/1-12/31) (Projected)			\$15,039,438
2014 (Projected)			\$90,236,624
2015 (Projected)			\$90,236,624
2016 (through 4/30) (Projected)			\$30,078,876
<b>Total</b>			<b>\$556,864,970</b>

<sup>1810</sup> “MRebut55555 Menactra Damages Assumption 1.csv”.



<b>Table 20: Classwide Overcharge Damages on Menveo (Using Projected Damages Rates That Control for Seasonality)<sup>1811</sup></b>			
<b>Year</b>	<b>Average Overcharge on Menveo</b>	<b>Class Member Menveo \$ Purchases</b>	<b>Overcharge Damages on Menveo</b>
2010	49%	\$16,375,605	\$8,099,937
2011	57%	\$40,580,684	\$22,965,468
2012	57%	\$51,559,220	\$29,344,768
2013 (1/1-8/31)	56%	\$27,159,798	\$15,150,948
2013 (9/1-12/31) (Projected)			\$7,970,472
2014 (Projected)			\$23,911,416
2015 (Projected)			\$23,911,416
2016 (through 4/30) (Projected)			\$7,970,472
<b>Total</b>			<b>\$139,324,897</b>

1020. **c. Effect of Sale Menveo to GSK On Damages.** Finally, Professor Rubinfeld argues that my damages estimate is inflated because I did not cut damages off after March 2015, when he asserts that my theory of how the Bundle divided the MCV4 market “entirely falls apart” after GSK’s March 2015 acquisition of Menveo.<sup>1812</sup> He bases his assertion solely on the false premise that my market division theory relies upon a finding that Menactra’s incremental price is below cost according to the discount-attribution test.<sup>1813</sup> As I explained above in Part V.F, Menactra’s incremental price need not be below cost to anticompetitively divide the MCV4 market. To anticompetitively divide the MCV4 market, the

<sup>1811</sup> “MRebut55555 Menveo Damages Assumption 1.csv”.

<sup>1812</sup> Rubinfeld Report ¶¶720-721.

<sup>1813</sup> Rubinfeld Report ¶721.

Bundle need only restrain a significant share of customers from buying Menveo in a way that reduces Menveo's seller's incentives to cut Menveo's price. Before GSK bought Menveo, the Bundle restrained Sanofi customers from buying Menveo because of the threat of higher prices on Sanofi's Pediatric vaccines. This reduces the amount of sales Menveo's seller would gain with any Menveo price cut, and thus gutted Menveo's seller's incentive to cut Menveo's price. The same would be true if Menveo's seller switched from Novartis to GSK.

1021. Indeed, GSK buying Menveo would reinforce the market-dividing anticompetitive effect if GSK responded to Sanofi's Bundle by paralleling it.<sup>1814</sup> Menveo's seller would have even less incentive to cut prices to retain GSK loyal customers because now such buyers would suffer a bundled penalty price on GSK pediatrics if they switched to Menactra. That in turn means that Sanofi would have even less incentive to try to cut Menactra prices to get GSK loyal customers. GSK also could not cut Menveo prices to Sanofi loyal customers without undermining the Menveo loyalty discount that it would now be using to enforce the GSK pediatric loyalty condition. So Menveo's seller would now be even less able to target Sanofi loyal customers for Menveo price cuts and Sanofi would have even less incentive to cut Menactra prices to Sanofi loyal customers. Thus, contrary to Professor Rubinfeld claim that my damage calculation "entirely falls apart after GSK's acquisition of Menveo,"<sup>1815</sup> my damage calculation actually gets, if anything, more conservative after that point.

1022. **d. Summary.** Professor Rubinfeld's criticisms of the method I used to calculate aggregate damages are all invalid. The yardsticks that he prefers are clearly flawed, and he also miscalculates them. Nor are any of his critiques of my post-2013 estimates of damages correct. My methodology to calculate them does limit Menveo damages to class members, and his claim that I did not is simply false. My post-2013 damages calculation is not significantly affected by seasonal

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<sup>1814</sup> Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARVARD LAW REVIEW 397, 475 (2009) ("having two firms use bundled loyalty discounts only worsens the extent to which their cumulative effect can discourage discounting"); Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 JOURNAL OF COMPETITION LAW & ECONOMICS 189, 194, 214–15, 220 (2009) ("I extend the analysis to cases where multiple firms offer loyalty discounts with commitments, and prove that this exacerbates the anticompetitive effects. The resulting cumulative foreclosure leaves fewer uncommitted buyers available, and thus creates even less incentive for either firm to undercut uncommitted prices to get them, given that doing so would reduce the committed prices of each firm.").

<sup>1815</sup> Rubinfeld Report ¶¶720-721.

effects. Nor is there any good reason to think that damages end in March 2015 when GSK acquires Menveo and reinforces the market-dividing Sanofi Bundle with its own Bundle. If to be conservative I adopt an approach that moots any claim about seasonal effects, the aggregate class damages through April 2016 are \$696,189,867.